PLANNING

Automobile Dealer Properties

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PLANNING AUTOMOBILE DEALER PROPERTIES

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Preface

"Planning Automobile Dealer Properties" summarizes the results of an extensive research activity which was undertaken to assist car and truck dealers to more effectively utilize land and buildings in selling and servicing motor vehicles.

This is a presentation of ideas rather than plans. Planning based on *ideas* looks forward. It seeks new layout and styling that will keep property functional and modern as far into the future as a current knowledge of the business permits. Planning based on *plans* looks to the past to solve tomorrow's problems and thereby risks outmoding a building before it is occupied. Plans rarely reveal the ideas on which they are based; hence even proved plans may work unsatisfactorily for dealers having different opportunities and ideas.

The scope of the book extends to dealer "properties" which include both land and buildings. It considers the property requirements of dealers selling cars, or trucks or both; and includes such allied activities as used vehicles, service, parts and accessories.

It is concerned with the effects of traffic, merchandise, location and other factors on a dealer's building specifications, and with evaluating the worth of designs in terms of their operating and selling efficiency.

The information can be applied to the modernization, alteration and expansion of existing properties, or to the development of new properties, because each stall, room, lot or other element of a dealer's property is approached as a "planning unit." Each planning unit is considered from the standpoint of functions, facilities, and methods, and their effect upon layout and elevation.

Dealers can use "Planning Automobile Dealer Properties"—

- —As a practical guide to the selection of features that yield larger returns on money invested in remodeling or new construction.
- —As a reference for analyzing space requirements.
- —As a basis for discussing building specifications with architects or contractors.
- —As an organizing procedure for guarding against premature obsolescence.
- —As an aid in recognizing sales opportunities that can be capitalized through the use of property, though the book is not intended to inspire building activity except in response to recognized profit incentives.

The book was prepared in response to requests from car and truck dealers for assistance in planning their properties. General Motors Corporation believes the information contained herein to be true and correct and to be helpful for the purposes stated, but neither General Motors Corporation nor any contributor of material or data herein makes any warranty for, in connection with, or arising out of its use.

CREDITS AND ACKNOWLEDGMENTS

Many individuals and companies participated in supplying information for this book. The counsel, data and specifications came from five principal groups:

GENERAL MOTORS DEALERS
ARCHITECTURAL AND BUILDING PROFESSIONS
SUPPLIERS OF BUILDING MATERIALS AND EQUIPMENT
SUPPLIERS OF AUTOMOTIVE AND OFFICE EQUIPMENT
GENERAL MOTORS OPERATING DIVISIONS AND STAFF SECTIONS

General Motors Dealers

In gathering material for this book, General Motors Dealers were asked to suggest (1) features they would want included in a new building, and (2) features they would modify or eliminate if they were to redesign their present buildings.

Dealers cooperated splendidly and many valuable suggestions were made. Suggestions were received from as far away as Australia and many countries in Europe and South America.

Members of the architectural and building professions

General Motors, through "The Architectural Forum," sponsored a competition for the design of automobile dealer establishments. The competition was approved by the American Institute of Architects and the Royal Architectural Institute of Canada. General Motors appreciates the efforts of all who participated in making this competition a success. It particularly wants to recognize the contributions of the jury of awards, the professional adviser and the winning competitors:

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Suppliers of building materials and equipment

Many suppliers of building materials and equipment came forward with suggestions for improvements in the design and treatment of dealer buildings. General Motors takes particular pleasure in recognizing the contributions of the following companies:

AMERICAN BLOWER CORPORATION, *Detroit, Michigan*

AMERICAN FLANGE & MFG. CO., INC., *Detroit, Michigan*

AMERICAN LUMBER & TREATING CO., *Chicago, Illinois*

AMERICAN STANDARD RADIATOR & SANITARY CORP., *Pittsburgh, Pennsylvania*

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THE GULF OIL COMPANIES

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INDUSTRIAL SANITATION RESEARCH FOUNDATION, *Louisville, Kentucky*

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MARBLEITE COMPANY, *Chicago, Illinois*

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MARTIN-PARRY CORPORATION, *York, Pennsylvania*

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WOLVERINE PORCELAIN ENAMELING COMPANY, *Detroit, Michigan*

WOOD CONVERSION COMPANY, *Saint Paul, Minnesota*

Suppliers of automotive and office equipment

In planning to erect or remodel a building it is important to allocate space, adjust dimensions, and make other architectural preparations to accommodate equipment that will be used in the building. General Motors acknowledges the counsel and literature supplied by the following firms:

THE ARO EQUIPMENT CORPORATION, *Bryan, Ohio*
BARRETT EQUIPMENT COMPANY, *St. Louis, Missouri*
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THE DEVILBISS COMPANY, *Toledo, Ohio*
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GLOBE HOIST COMPANY, *Philadelphia, Pennsylvania*
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UNITED STATES AIR COMPRESSOR COMPANY, *Cleveland, Ohio*

General Motors operating divisions and staff sections

In initiating this activity General Motors Service Section asked its Domestic, Canadian and Overseas Divisions to participate. All car and truck Divisions responded with personnel and data. Other sections contributed to special phases of styling, planning and presentation. General Motors wishes to recognize the pooling of effort and information by the following divisions:

BUICK MOTOR DIVISION
CADILLAC MOTOR DIVISION
CHEVROLET MOTOR DIVISION
GENERAL MOTORS OF CANADA, LTD.
GENERAL MOTORS OVERSEAS OPERATIONS
GMC TRUCK AND COACH DIVISION
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GENERAL MOTORS PHOTOGRAPHIC
GENERAL MOTORS STYLING SECTION

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UNIT PLANNING

This section is concerned with planning the rooms, stalls, ramps, driveways and other units that make up a dealer's property.

Each unit is considered from the standpoint of its purpose, content and internal arrangement; its plan and elevation features; and how it should be located in relation to other units to achieve operating efficiency.

The information is intended to guide a dealer—

In deciding what kind of units he may want.

In explaining his requirements to an architect or contractor, and—

In selecting the design ideas that are most valuable to his specific business.

Consideration is given to the land and structural elements to be used for the following activities:

New Car Sales
Used Car Sales
Service
Parts and Accessories
Administration and Personnel
Store Front Display

NEW CAR SALES

All units of a new car department should be planned to increase the volume and reduce the cost of automobile sales. This section is concerned with the specifications and features of the following units:

- New Car Showroom
- New Car Demonstrator Parking Stalls
- New Car Storage Stalls
- New Car Conditioning Stalls
- New Car Delivery Stalls
- Sales Manager's Office
- Sales Office
- Sales Meeting Room

New Car Showroom

How to plan a showroom

A dealer can secure a showroom adapted to his particular needs and to a specific location if he will—

- Plan the showroom to produce a profit
- Plan the showroom to fit the traffic
- Plan the showroom to display automobiles
- Select elevation features with display value

Plan the showroom to produce a profit

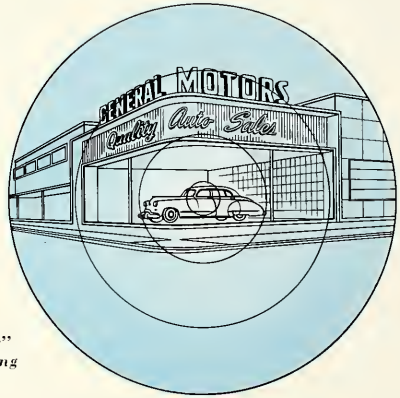
A knowledge of showroom values and a yardstick for measuring the worth of space and features are basic requirements in planning a showroom that will produce more profit.

Showrooms should stimulate sales by guiding customers in pre-selection of a new car and by quickening their desire to buy.

Showrooms should reduce selling costs by performing advertising and merchandising functions which reduce personal selling expense.

The new car showroom also should identify the allied activities of an automobile dealership, and stimulate the sale of used cars, service, parts and accessories.

The investment in a new car showroom should be related to its effectiveness for increasing volume at reduced expense.



The Four "A's" of Display Selling

MEASURING WORTH OF SHOWROOM FEATURES

Automobile dealers can evaluate the worth of showroom space and features by what they contribute to these four functions:

Attraction

A showroom, together with the building that forms its setting, should attract customer attention. It should compete successfully for customer interest with other displays along the street.

Atmosphere

The showroom should be psychologically attractive and physically comfortable. Comfortable surroundings should invite customers to enter and shop.

Appearance

The showroom should transmit customer interest to the products displayed. Its beauty should complement product appearance without competing for customer interest.

Appraisal

A showroom should provide conditions that encourage customers to examine features and details of the product. It should facilitate observations and comparisons that promote quick and accurate buying decisions.

Plan the showroom to fit the traffic

A dealer can obtain the most value from his showroom if it is located, shaped and equipped so that it is seen—

By the largest amount of traffic
For the longest period of time, and
At the most frequent intervals

To take full advantage of his location a dealer should—

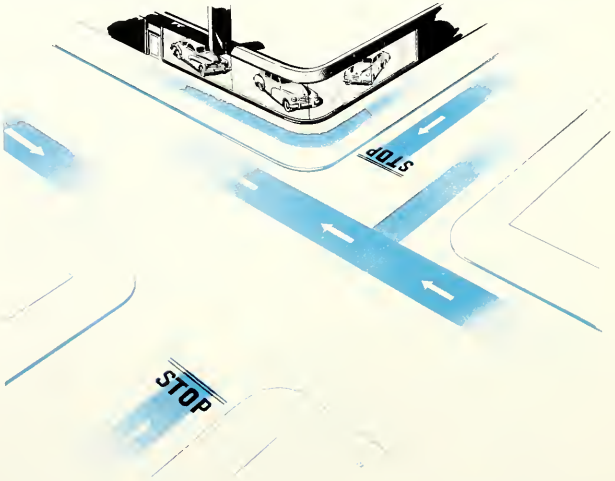
Relate showroom values to traffic values
Arrange displays in relation to traffic
Locate showroom in relation to traffic
Shape the showroom in relation to traffic.

RELATE SHOWROOM VALUES TO TRAFFIC VALUES

Traffic is the most valuable asset of any retail business because it is the raw material from which customers are derived. Traffic is composed of drivers, passengers and pedestrians who move to and fro along established streets and highways. Showrooms function as mechanisms for converting street traffic to floor traffic, and floor traffic to customers. The effectiveness of a showroom is related to the available traffic.

The flow of traffic varies with different locations and at different times of day. Hence, in order to be certain that his showroom will be of the right capacity, efficiency and cost, a dealer should carefully analyze and measure—

Traffic movement
Traffic quality
Traffic quantity



Traffic Patterns

Traffic Movement

A dealer should know *why, where* and *when* traffic moves past his location so that he can utilize his assets and make the proper investment in showroom facilities.

A dealer should consider *why* traffic moves because the reason for its movements affects its regularity and value. Daily activities cause a uniform traffic flow from which a showroom can attract customers economically. Seasonal or occasional activities may cause large traffic movements but they fail to utilize showroom facilities enough of the time to provide a satisfactory return on investment.

A dealer should know *where* people move so that the showroom exposure can be adjusted to traffic routes. Different problems are involved in displaying to sidewalk traffic and to highway traffic.

A dealer should know *when* people move so the showroom can be planned and equipped for peak performance at the periods when it attracts the largest audience.

Traffic Quality

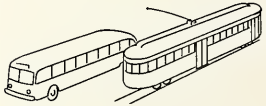
All traffic is not of equal value in terms of automobile sales potential, so showrooms should be planned to attract the kind of traffic that uses automobiles.

Motoring traffic is particularly valuable in the automobile business because drivers constitute a dealer's richest market. Truck traffic is equally important to truck sales.

Traffic Values

Cars

Trucks



Mass Transportation

Pedestrians

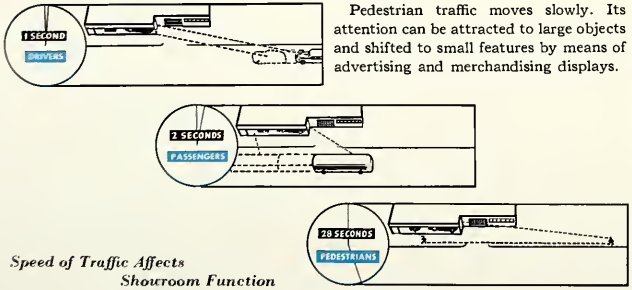
Mass transportation systems carry traffic which usually is low in percentage of car buyers. Pedestrian traffic within shopping centers normally contains a high percentage of automobile users who are temporarily pedestrians. But pedestrian traffic outside the fringe of shopping or business centers usually contains a low percentage of car users.

Traffic—5,000

Traffic—25,000

Traffic Quantity

The amount of traffic that a showroom can influence has a direct bearing on the values the showroom can produce, and on the amount that should be invested in it.



Speed of Traffic Affects Showroom Function

ARRANGE DISPLAYS IN RELATION TO TRAFFIC

Displays can be arranged to convey a brief advertising message or to tell a detailed merchandising story. In turn, showrooms can be designed to present advertising or merchandising displays, or both. The emphasis that a showroom should place on advertising or merchandising displays depends on the length of time traffic will spend in looking at the displays.

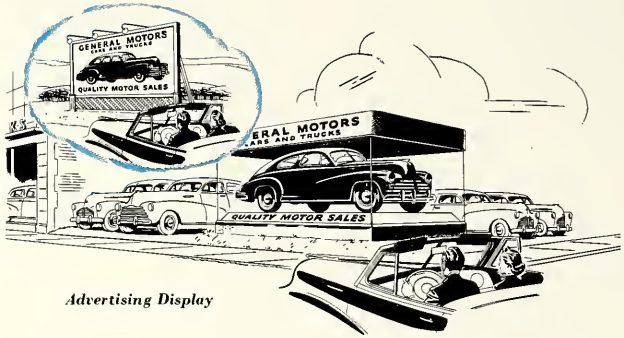
Adjust Displays to Traffic Speed

The length of time that traffic sees displays determines what type of display will make the most favorable impressions.

Drivers have the least time to see and comprehend displays. An advertising display that presents one car dramatically and creates one favorable impression is more effective with drivers than multiple displays or complicated settings.

Passengers in moving vehicles have more time to see and comprehend displays. Advertising displays consisting of a few large objects such as the showroom and one or two cars can create favorable impressions.

Pedestrian traffic moves slowly. Its attention can be attracted to large objects and shifted to small features by means of advertising and merchandising displays.



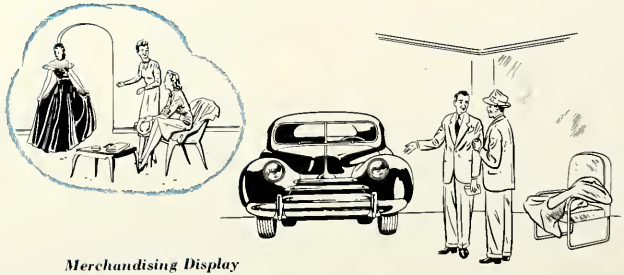
Advertising Display

Showroom Exclusively for Advertising Display

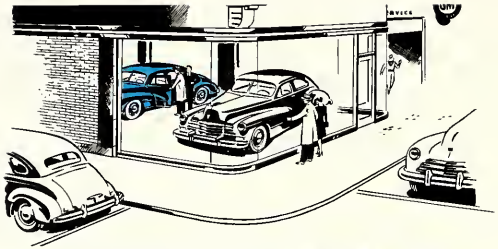
A showroom can be designed as a three-dimensional sign to attract attention to the dealership and product. A jewel-case display, or any other that concentrates on the advertising function, is adaptable to locations exposed to street traffic whose attention can be held only momentarily. Merchandising displays should be arranged for traffic that stops.

Showroom Exclusively for Merchandising Display

A showroom can be designed for merchandising, such as a salesroom without a street exposure. This type of showroom is useful for displaying several makes or models. It is adapted to locations that attract heavy floor traffic. Showrooms that only perform merchandising functions should be supplemented by advertising displays.



Merchandising Display



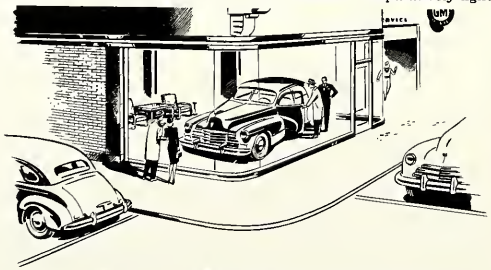
Separate Displays for Advertising and Merchandising

Showroom Using Separate Displays for Advertising and Merchandising

A showroom may be designed to display some car(s) for advertising and others for merchandising. High visibility to street traffic can be provided for advertising displays while conditions comfortable to floor traffic can be provided for merchandising displays. Showrooms providing both types of display are desirable at locations that attract both street and floor traffic.

Showroom Using Same Display for Advertising and Merchandising

A showroom may be planned to display the same car(s) to both street traffic and floor traffic. This type of showroom usually is designed to emphasize advertising. It is adaptable to small operations where the sales potential does not justify multiple displays. It is also appropriate for locations where street traffic is heavy but floor traffic is comparatively light.



Advertising and Merchandising with the Same Display

LOCATE THE SHOWROOM IN RELATION TO TRAFFIC

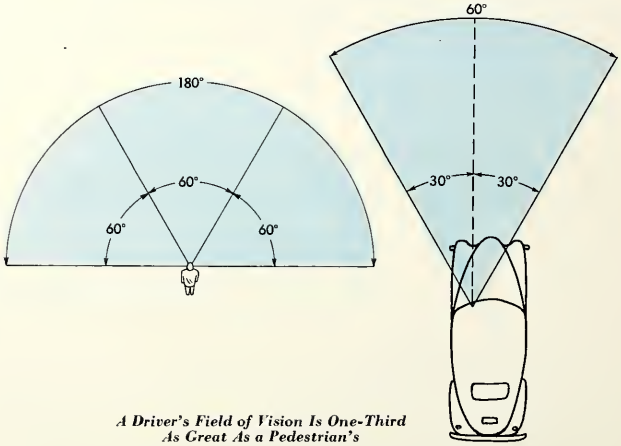
There are certain points along established traffic lanes from which most people will see a dealer's showroom. And certain sections of every lot are more visible to passing traffic than other sections. Hence, it is important to—

- Locate a showroom within traffic's field of vision
- Locate a showroom at the proper viewing distance
- Locate a showroom to attract the most buying power
- Locate a showroom to make deeper impressions
- Locate a showroom to be seen often.

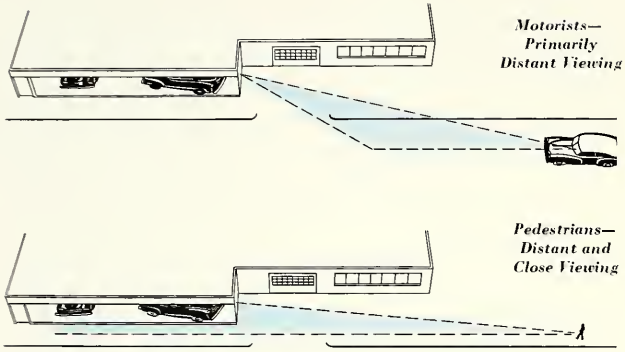
Locate a Showroom Within Traffic's Field of Vision

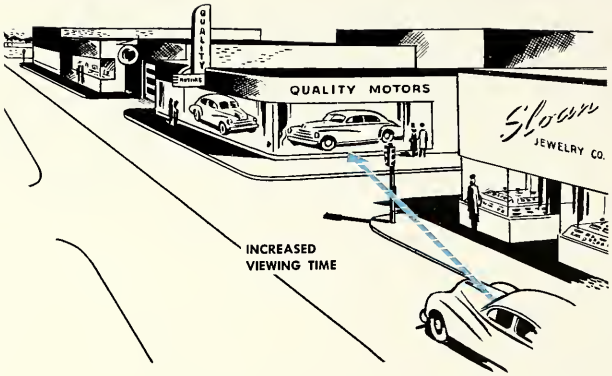
Objects directly in the line of vision are seen most distinctly and make the deepest impressions. Objects outside of the direct line of vision, but within a 30° angle on either side, are less noticed, but make fairly definite impressions. As the angle increases beyond 30°, visibility and comprehension diminish rapidly.

Although people can turn their heads to see displays within an angle of 180°, drivers have little opportunity to look around and pedestrians may not look. Hence, for high visibility, the showroom should be located within a 30° angle to approaching traffic wherever possible.



A Driver's Field of Vision Is One-Third As Great As a Pedestrian's





A Long Approach Deepens the Impressions

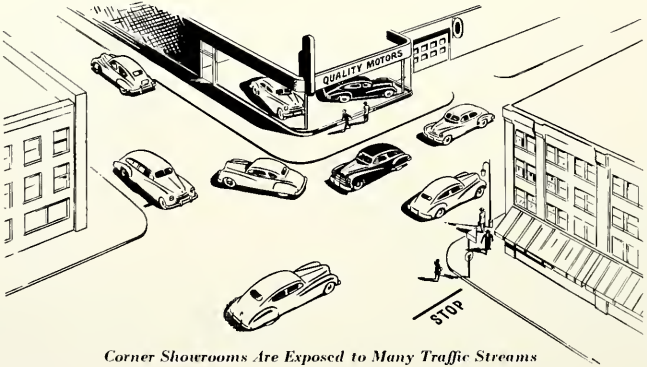
Locate a Showroom at the Proper Viewing Distance

Pedestrians can see a showroom display from a distance and also from close-up. From a distance they see the showroom scene and the cars. At closer range they see features and details. Showrooms located for both distant and close viewing are most effective for pedestrian traffic.

Motorists see showroom displays most clearly from a distance. At close range showrooms appear blurred to fast-moving traffic and create only hazy impressions.

Locate the Showroom to Attract More Buying Power

Corner property is exposed to the largest number of pedestrian and vehicular traffic streams. Restrictions on curb parking at corners also tend to assure a less obstructed view to passing traffic.



Corner Showrooms Are Exposed to Many Traffic Streams

Locate a Showroom to Make Deeper Impressions

The longer customers view a display the more they will see and comprehend. Increasing the length of the approach automatically increases viewing time and the number and depth of the impressions.

Longer viewing distances are particularly important in impressing motor traffic, because its viewing time is short at best.

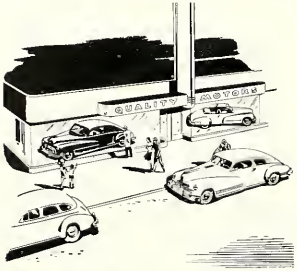
Locate a Showroom to Be Seen Often

A showroom will make repeated impressions if it is located on a portion of a dealer's lot that comes naturally within the field of vision of approaching traffic.

Showroom Location for Pedestrian Traffic

Dealers locating in business or shopping centers should place their showroom to provide good visibility to sidewalk traffic.

Land is usually expensive in heavily-traveled pedestrian sections, so it is customary to build out to the property line. However, a set-back that permits customers to step clear of sidewalk traffic provides a more comfortable shopping atmosphere, invites longer viewing, that makes deeper impressions.



Pedestrian Traffic

Showroom Location for Motor Traffic

It is more difficult to provide high visibility for vehicular traffic because of its narrower field of vision, the longer viewing distances required and the greater distance between traffic lanes and the building line.

To provide effortless viewing for motor traffic, the showroom and other portions of the dealer's building should be located in relation to the type of lot as follows:

Showroom Location on a Far Corner Lot A showroom on the corner of a lot that is on the far side of the intersection to main street traffic readily attracts attention. The main street frontage assures the showroom of traffic volume, and the side street provides the long approach that is needed to give drivers an opportunity to see and comprehend.

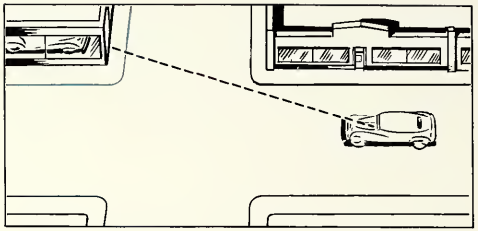
If the side street carries important vehicle traffic, the set-back feature suggested for a near corner lot also may be incorporated.

Showroom Location on a Near Corner Lot With a near-corner lot the showroom can be located at the property line and the nearer portions of the building can be set back to provide the long approach necessary to impress main street driver traffic. The set-back area can be utilized to provide a better approach to the service department and for the display of used cars.

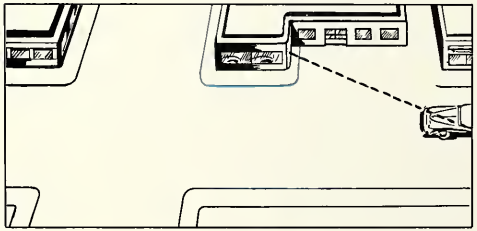
Side street traffic gets a clear view of a showroom on the far side of the main street intersection.

Showroom Location on an Inside Lot With an inside lot a dealer can expose the showroom to near side motoring traffic by setting the showroom out to the property line at the far end of the lot, and setting back other portions of the building that would obscure the showroom to approaching traffic.

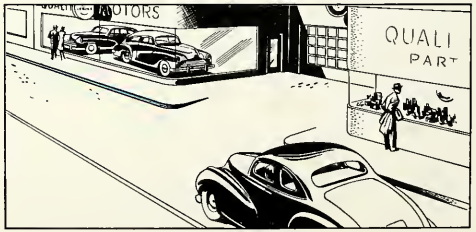
If an inside lot has sufficient area and frontage, the building may be set back from the property line on both sides of the showroom. A projecting showroom provides better visibility to far side traffic and better natural illumination for displays.



Far Corner Lot



Near Corner Lot



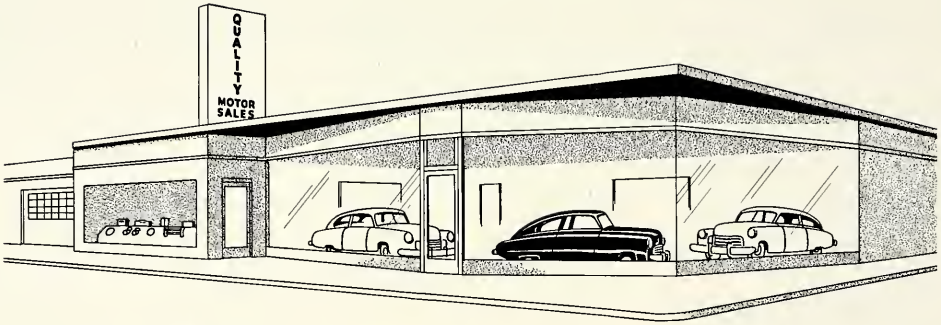
Inside Lot

SHAPE THE SHOWROOM TO TRAFFIC

The shape of a showroom has a direct effect on the size and interest of the showroom audience.

Aim Show Windows at Street Traffic

Displays inside a show window can be seen most clearly when viewed at an angle perpendicular to the pane of glass. Visibility through glass diminishes as the viewing angle varies from the perpendicular, particularly under daylight conditions. Dealers should shape their showrooms so that their show windows will face approaching traffic. Then displays will be visible from more points, for a longer time, and under more difficult lighting conditions.



Angled Show Windows

Showroom Shaped to Face Buyers

Showrooms Shaped to Property Lines May Hide Displays

Property lines have been permitted to dictate the shape of many showrooms, even when this has caused windows to be positioned where they obscured the view of displays. Outdoor advertising companies do not make this mistake. They erect signs to face the most important traffic streams. Shaping a showroom to reach a larger and more interested audience does not waste land and it may reduce construction costs.

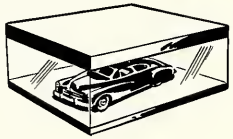
Showroom Shaped to Property Lines

Shape the Showroom to Daytime Traffic

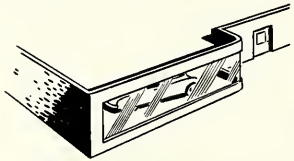
Better natural illumination can be provided for advertising displays, if a showroom is shaped so that its windows gather light from several directions. Light coming from several sources provides better quality illumination by distributing light more evenly over the displays. The illustrations indicate how the quantity and quality of natural light can be improved through the shape of the showroom.

Artificial Lighting Cannot Substitute for Natural Lighting

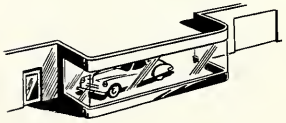
During evening hours when natural light is very low, artificial light extends the usefulness of a showroom. On dull days, artificial light can supplement natural light to dispel shadows, reflections and glare. But on bright days, only showrooms shaped to use natural light can display cars effectively. It is impractical to provide enough artificial light to compete with natural light on bright days.



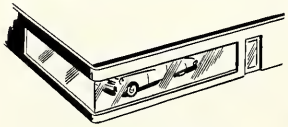
FOUR-WAY DAYLIGHTING



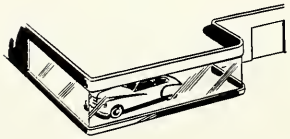
TWO-WAY DAYLIGHTING INSIDE LOT



THREE-WAY DAYLIGHTING INSIDE LOT



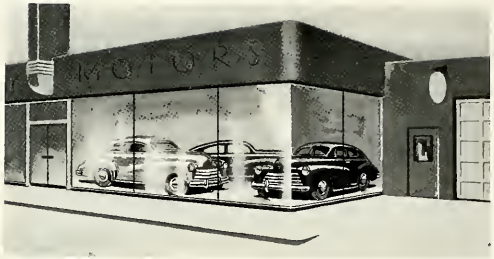
TWO-WAY DAYLIGHTING CORNER LOT



THREE-WAY DAYLIGHTING CORNER LOT

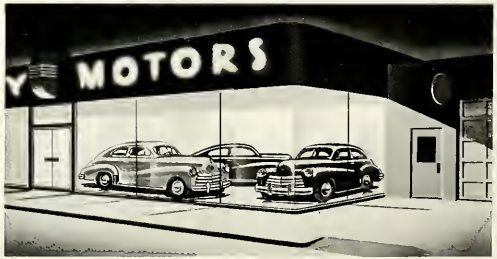
ONE-WAY DAYLIGHTING

Quantity and Distribution of Natural Light

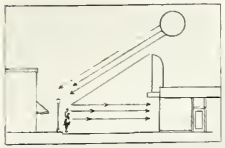


Bright Days—Natural Lighting

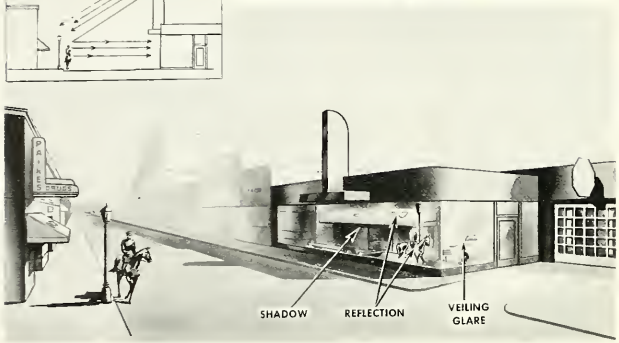
Dull Days—Natural Plus Artificial Lighting



Nighttime—Artificial Lighting



Conditions That Reduce Display Time



Shape the Showroom to be Effective for More Hours per Day

A showroom functions more of the time if it is shaped to combat shadows, reflections and veiling glare.

Shadow When the vision of street traffic is adjusted to daylight, it cannot see window displays that are far lower in brightness than objects on the street. Harsh shadows can be avoided by shaping the showroom to admit light from more directions and in larger amounts.

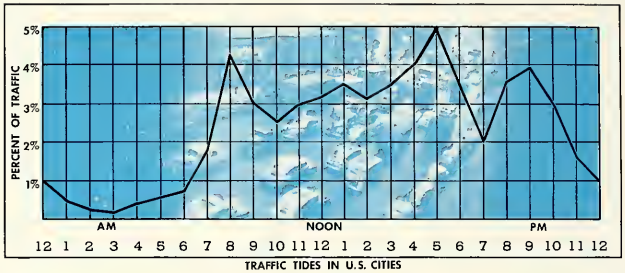
Reflections When images reflected by the surface of a show window are more visible than displays behind the window, an objectionable loss of display time results. Reflections occur when showroom illumination is far below the brightness of objects on the street. Reflections can be reduced in intensity by increasing window area and by eliminating signs, canopies or other elevation features that shut out light.

Veiling glare When a window surface reflects so much light it obscures displays behind the glass, the condition is known as "veiling glare."

Veiling is increased when a window is seen from a sharp angle. Setting windows as perpendicular as possible to important viewing points improves visibility.

Glare increases when light strikes a window at a sharp angle. Hence, windows should be positioned so that light will strike more perpendicularly at hours of peak traffic movement.

Glare also is increased by dirt on glass surfaces. Good maintenance reduces veiling glare.



Shape the Showroom to Traffic Tides

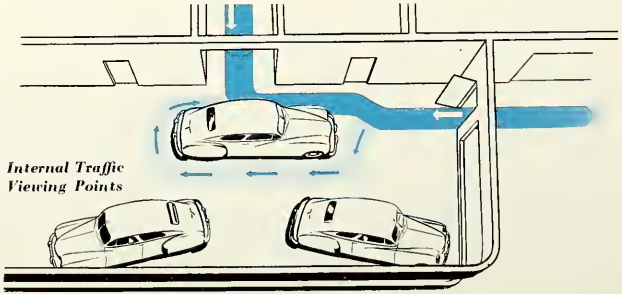
Statistical data show that in average American cities, more than 60% of all traffic moves during daylight hours, 6 a.m. to 6 p.m., and that 30% moves between 6 p.m. and midnight.

Dealers should ascertain how traffic at their specific locations is divided between day and evening movements. Showrooms can then be designed to play to the largest and most interested audience.

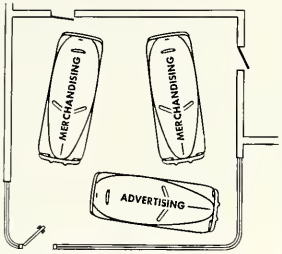
Daytime traffic moves hurriedly and can be reached by advertising displays that deliver a short message quickly. Evening traffic moves leisurely and is inclined to stop and inspect merchandise displayed in an inviting setting.

Shape the Showroom to Floor Traffic

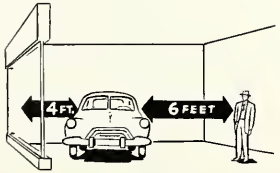
Merchandising displays draw more attention from floor traffic if the showroom is shaped so displays can be located at aisle intersections or other traffic points.



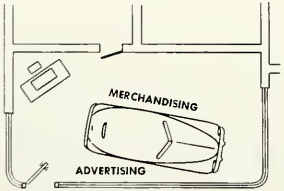
Internal Traffic Viewing Points



Frontage for Street Traffic
Depth for Floor Traffic



More Clearance for Merchandising Display



Less Clearance for Advertising Display

ADJUST SHOWROOM DIMENSIONS TO TRAFFIC

The width, depth and area needed for an efficient showroom should be determined in relation to traffic.

Adjust Showroom Frontage to Street Traffic

Moving vehicular traffic seldom has time to see and comprehend more than one car display, but traffic that is stopped for lights may be shown more displays. Pedestrian traffic also may view a series of displays. Showroom frontage should be adjusted to the movement and type of street traffic.

Adjust Showroom Depth to Floor Traffic

Showrooms that attract substantial floor traffic should have sufficient depth, so that cars arranged as merchandising displays can be located away from show windows and street interruptions.

Adjust Showroom Area to Street and Floor Traffic

For visibility to street traffic, cars should be placed close enough to the show window to be illuminated by daylight. A clearance of 3 feet at the front of the car and 4 feet at the rear creates a more casual and pleasing atmosphere and allows for opening the car doors. It also improves product appearance by intensifying light and attention on the front of the car, and by allowing the rear of the car to fade into light shadow, thus increasing its apparent length.

Greater space should be provided around merchandising displays so that prospects can stand back and admire automobiles in their full perspective.

Plan the showroom to display automobiles

Automobiles are different from other merchandise that is displayed in show windows and showrooms. Dealers should, therefore—

- Shape the showroom to automobile characteristics
- Adjust showroom dimensions to the size of the vehicles
- Adjust showroom area to number of vehicles.

SHAPE THE SHOWROOM TO AUTOMOBILE CHARACTERISTICS

The color, styling and shape of automobiles accentuate certain display problems that are less pronounced with other types of merchandise. These special characteristics of automobiles should be considered carefully in planning the arrangement and shape of a showroom.

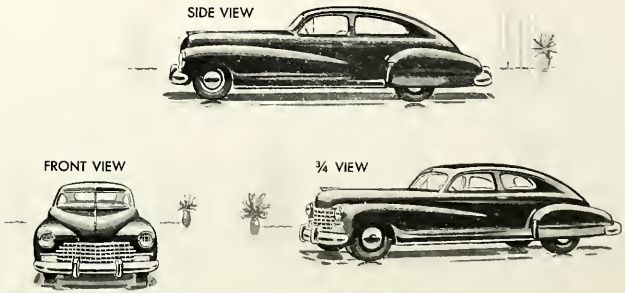
Color of Automobiles Affects Showroom Shape

More natural and artificial light is needed to display automobiles than for brighter merchandise. Automobile colors (even those considered "bright") reflect little light. To make an effective display, automobiles should be lighted so that their full form and color are seen from the street without effort. Too often only the outlines of chromed parts are visible to street traffic under daylight conditions.

Showrooms with large window areas and more than one exposure help to display cars.

Styling of Automobiles Affects Showroom Shape

Printed advertisements feature the front and side views of cars because they are the most attractive. Similarly, a showroom should be shaped so that the most attractive views of new car displays face the most important traffic.



The Most Impressive Views of a Modern Car

Shape of Automobiles Affects Showroom Shape

The effective display of automobiles requires a more uniform distribution of light in show windows than is needed for the display of smaller articles. Uneven lighting distorts the appearance of cars.

To achieve an even distribution of natural light, it is necessary to arrange cars so that all surfaces facing street traffic are about equally distant from the window. Wide, flat windows provide uniform illumination from front to rear. High windows illuminate cars evenly from top to bottom.

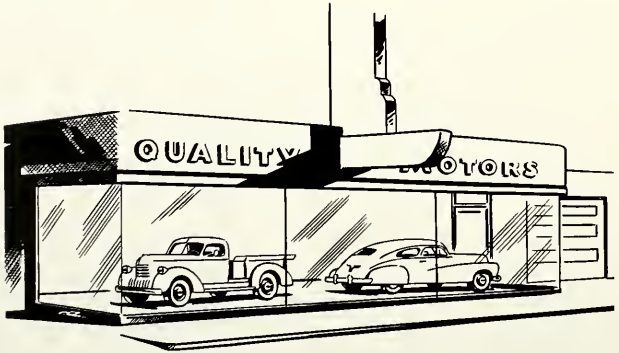
Cars are approximately rectangular in shape and can be arranged for good visibility in showrooms of like shape. In angular or circular showrooms, it is sometimes impossible to arrange cars so that shadows do not distort appearance.

ADJUST SHOWROOM AREA TO SIZE OF VEHICLES

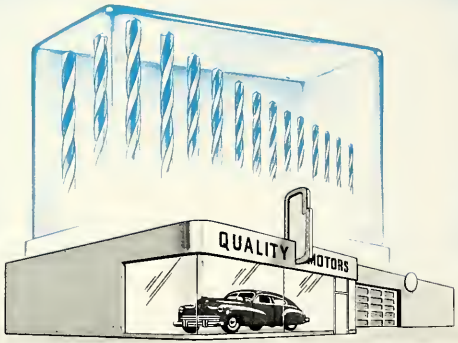
The space provided for each display should be predicated on the vehicle dimensions for which the entire property is designed. Truck showrooms may be designed to smaller dimensions if only stock models are to be displayed, and if chassis are to be shown without bodies.

ADJUST SHOWROOM AREA TO NUMBER OF VEHICLES

Dealers who sell more than one line of cars, or who sell both cars and trucks, may want sufficient floor space to display several vehicles at one time. Dealerships that attract heavy floor traffic may desire space to display a variety of models, body styles or colors.



Space to Display More Than One Make, Model or Type of Vehicle



A Showroom Should be a Part of the Display

Select elevation features with display value

A showroom should be a tool for selling new cars and not merely a protecting case. Because cars are seen through or against showroom elevations, every elevation feature should be regarded as a "working face" of the display. Both *exterior* and *interior* features should be chosen for their display values.

EXTERIOR ELEVATIONS

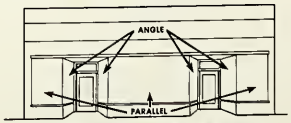
Features of a showroom exterior that have an important effect on display value are:

Show windows	Roof supports
Window shades	Bulkheads
Window signs	Doors and doorways

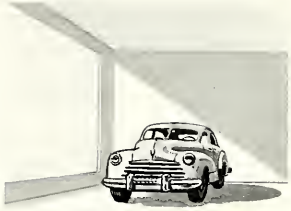
SHOW WINDOWS

Width of Show Windows

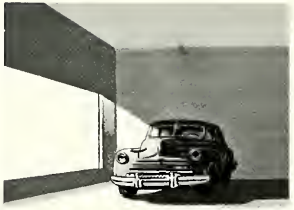
Specialists in merchandising expand their display frontage by setting windows at angles. This permits the display of more merchandise and improves visibility through more light and better light distribution. Automobile dealers have an even greater need for widening their show windows because of the greater size and darker finish of their merchandise.



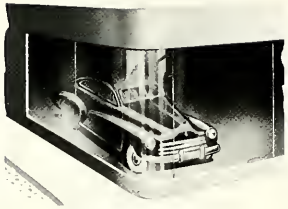
Merchandisers Use Wide Windows



High Windows Close to Ceiling



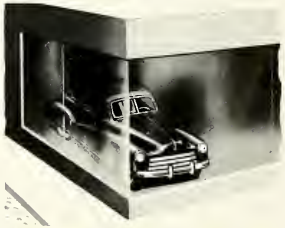
Low Windows Dropped From Ceiling



Curved Plate Glass

Narrow Panes

Wide Panes Mounted Diagonally



Wide Panes Mounted at Right Angles

Height of Show Windows

A window height of 10′6″ is minimum to achieve good product lighting with good atmosphere. Window heights up to 12′ are in common use to improve architectural design and to provide better natural illumination for car displays.

Show windows that extend up close to the ceiling permit light from bright skies to strike the ceiling and be reflected down onto the displays. It is good practice to allow only enough space between the show windows and ceiling to conceal artificial lighting fixtures.

Tilt of Windows

It is sometimes claimed that window glare and reflections can be reduced by splayed windows and a canopy.

Windows tilted away from the sky are exposed to less glare and objects shaded by a canopy cast subdued reflections. But glare and reflections are aggravated by shutting off light from the interior. Reflections that do occur appear at an unnatural level which tends to divert attention. Vertical show windows, therefore, appear best adapted for the display of automobiles.

Splayed Show Windows

Glazing Around Corners

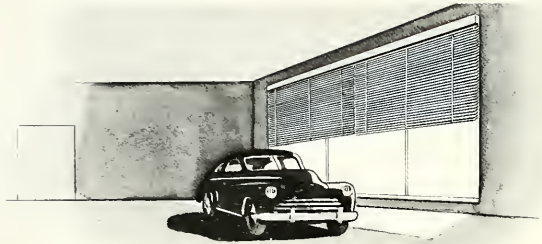
The modern trend toward surrounding the showroom with a continuous expanse of glass raises the question of how best to glaze around corners.

When curved walls are used in forming the corners of a store front, it is architecturally consistent to use curved plate glass to make the building more attractive. Curved window panes are more expensive than flat panes, and are available only on special order. Surface glare is more pronounced on curved glass windows but this is not too serious an objection.

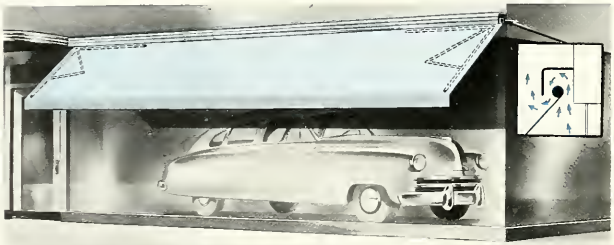
Curved corners also may be glazed by a series of flat panes that are narrow enough to be set within the wall thickness. Glazing with narrow panes is less costly than with curved glass and is used more extensively. Glare characteristics are similar to those with curved glass corners because of the multiple angles involved.

Wide windows set at right angles provide visibility for displays from many viewpoints. However, restricting architectural design to right-angled window settings may limit the attention-getting value of a building.

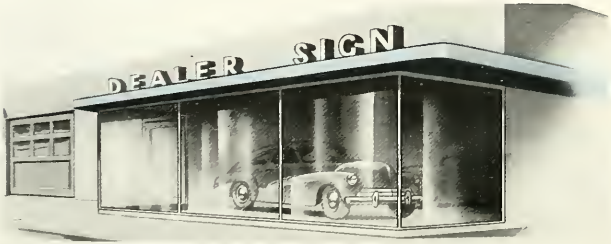
Wide, flat panes, mounted diagonally, provide maximum visibility for displays and allow variety in architectural design.



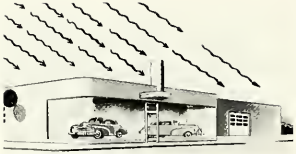
Inside Shading



Shading the Showroom with an Outside Awning



Shading the Showroom with a Permanent Canopy



North or East Facing Showrooms

South or West Facing Showrooms

WINDOW SHADES

The need for shading a showroom depends upon exposure which affects both brightness and temperature. The problem in shading consists of controlling heat and light rays that cause discomfort inside a showroom, without reducing the visibility of displays too much or for a longer time than is necessary.

Venetian Blinds

Shades or venetian blinds hung inside a show window afford only partial protection from solar heat because they do not stop heat rays from entering. However, they do control light rays effectively and are adjustable to varying light conditions.

Venetian blinds can be used to increase the brightness of displays at night or to reduce lighting costs. Lowering blinds to three feet six inches above the height of the display cars prevents the escape of artificial light.

Awnings

An outside awning provides effective control of both light and heat rays. The sun's rays are stopped and heat is dissipated outside the showroom. An awning should be ventilated at the top or by louvers so that heated air will not be trapped against the window and thus raise temperature in the showroom.

Awnings can be raised to heighten the visibility of car displays at times when solar light and heat are not a problem. Modern awnings are fully retractable when not in use. Outer coverings formed of metal furnish exceptional protection and good appearance.

Canopies

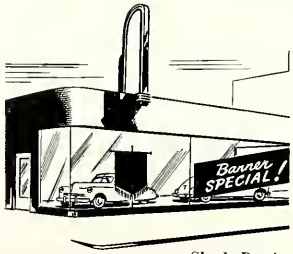
Built-in canopies stop heat and light rays before they enter the showroom, thus providing a cooler interior. Canopies protect pedestrians from the weather and help them to see window displays.

Permanent canopies, however, may reduce display time unnecessarily by shading displays at times when sunlight creates neither a heat nor light problem in the showroom.

Shading caused by a canopy can be offset in several ways. The height of the show windows may be increased to admit more light. The canopy may be placed higher above the window line to exclude less light, or adjustable louvers may be installed in the canopy.

Still another solution is to install a transom window above the canopy. The top side of the canopy can be finished with materials that reflect sunlight through the transom. The transom can be formed of prismatic glass blocks that bend light rays so they "bounce" against the ceiling and down onto the displays.

Sight Barrier



Shade Barrier

Brightness Barrier

WINDOW SIGNS

Signs mounted in show windows have recognized value for attracting attention and making impressions, but they should not be used in a manner that unnecessarily reduces the effectiveness of product displays. There are situations, of course, where window signs may be substituted for product displays.

Unlighted Signs

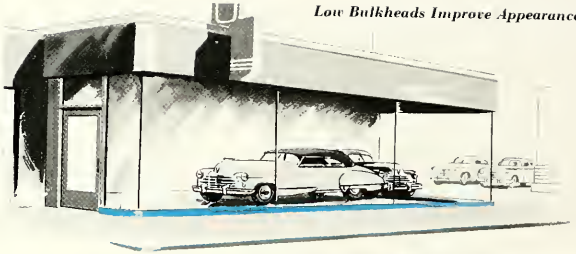
Indirect Interference Signs painted across the top of show windows reduce visibility by shading. Before placing a sign where it interferes with a car display, a dealer should consider whether the car display or the sign has the greater selling force.

Direct Interference Window signs should be analyzed to determine whether their message is intended for pedestrians or vehicular traffic. Signs with small lettering intended for pedestrians should be located at eye level and at points where they interfere least with product displays. Signs with large lettering intended for vehicular traffic are more visible if placed high on show windows where they can be seen above parked vehicles and where they interfere less with product displays.

Lighted Signs

A lighted sign can attract attention by its brightness and by its message, but when placed near eye level its brilliance may cancel out other values of the showroom.

A lighted sign should not be allowed to interfere with other show window advertising unless it tells a more important message or delivers the same message more effectively.



Low Bulkheads Improve Appearance

BULKHEADS

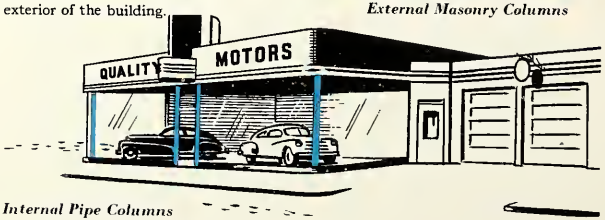
Bulkheads four to six inches high are in general use in modern store fronts. Low bulkheads are necessary to display the full beauty of automobiles. High bulkheads obscure portions of the display and may cause an apparent change in the lines of cars.

High Bulkheads Reduce Visibility

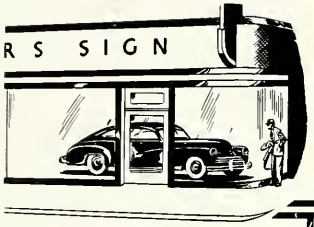
ROOF SUPPORTS

The modern trend in store front design is toward the use of internal pipe columns for roof supports, rather than external masonry columns. Pipe columns interfere less with the visibility of displays and help to give a streamlined appearance to the exterior of the building.

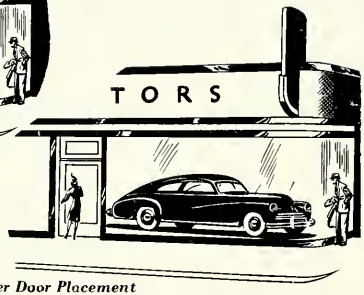
External Masonry Columns



Internal Pipe Columns



Improper Door Placement



Better Door Placement

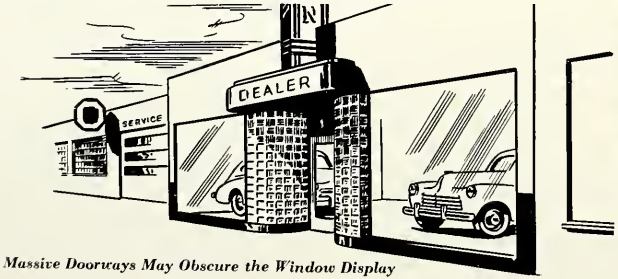
DOORS AND DOORWAYS

Doors

Conveniently located doors aid in converting street traffic into customers. Doors should be located and constructed in such a way that they do not reduce unnecessarily the effectiveness of displays.

Doorways

Elaborate entrances that give architectural prominence to a building are useful in attracting attention to a place of business. But such entrances should be located where they cause the least interference with approaching traffic's view of showroom displays.



Massive Doorways May Obscure the Window Display

Paneled Doors and Partitions

Flush Doors and Partitions

SHOWROOM INTERIORS

In designing a showroom as an effective tool for merchandising and advertising, interior features are as important as those of the exterior. Special consideration should be given to:

- Partitions and doors
- Interior windows
- Display backgrounds
- Floors
- Ceilings

PARTITIONS AND DOORS

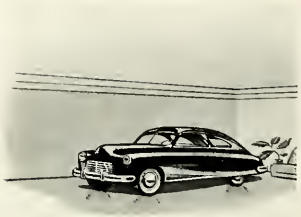
Partitions that face a showroom should create good atmosphere and provide a suitable background against which to exhibit new cars. Flush doors and partitions with internal framing do not distract attention or distort the appearance of car displays.

The triple doors through which cars are brought into the showroom, likewise, should be treated as a part of the showroom design.

Wall treatments should point up the beauty of car displays, rather than call attention to their own beauty. Dealers should be concerned with the beauty of the entire selling scene as a unit, rather than with the beauty of features considered separately.

Wall treatments that enhance the appearance of cars and create an inviting atmosphere meet the highest standard of architectural good taste—functional design.

Architectural Beauty Only



Merchandising Value Plus Architectural Beauty

INTERIOR WINDOWS

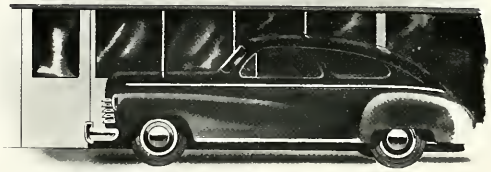
Most merchandise can be displayed better against an opaque background (one that light does not penetrate) than against a transparent or translucent background. The brightness and sparkle of a lighted window draw attention away from merchandise displays. A darkened window does not provide the contrasting background needed for good display.

Interior windows seldom transmit a significant amount of natural light to offices adjoining a showroom, and they permit the escape of artificial light that should be directed onto the displays.

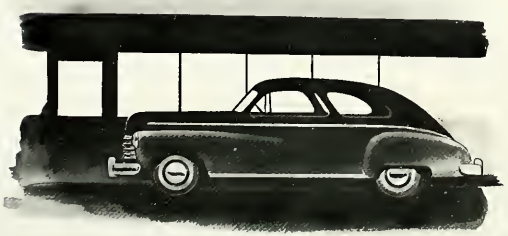
DISPLAY BACKGROUNDS

A light colored background that traps and redirects natural light builds up brightness inside the show window. This reduces veiling glare and neutralizes reflections on the surface of the glass.

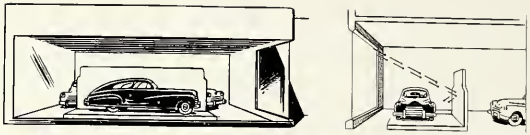
Movement is helpful in attracting attention to a new car display. Displays with a mirrored background do not actually move, but they reflect images of moving objects and thus attract attention. The rotating turntable is not a new device, but it continues to be effective. Lighted backgrounds that change color or intensity also are used to draw attention.



Darkened Windows Camouflage Displays



Bright Windows Silhouette Displays

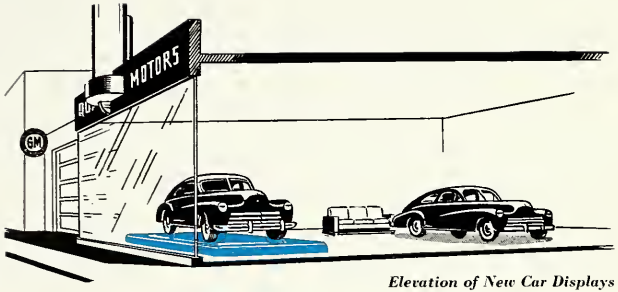


Backdrops Increase Visibility

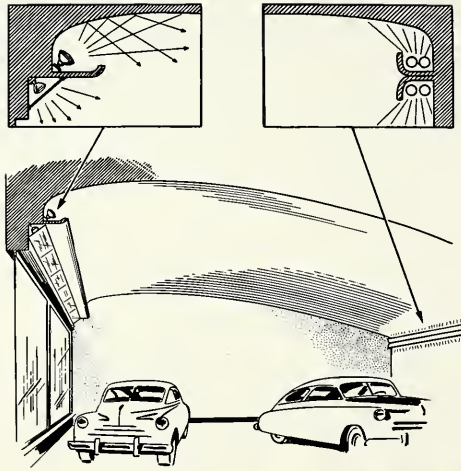
Turntable

Moving Back Lights

Mirrored Background



Elevation of New Car Displays



Slanted Ceiling

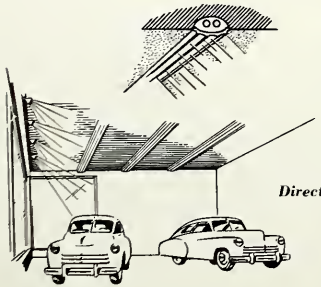
FLOORS

Automobiles are styled to look their best when seen from eye level by people in a standing position. Hence, merchandising display cars should rest on the floor.

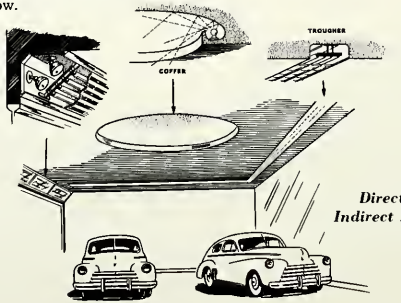
Advertising displays may be made more visible to street traffic by elevating them 6″ to 20″ above sidewalk level. The use of a raised platform generally is preferred to a raised floor, because a platform does not require steps at the street entrance.

CEILINGS

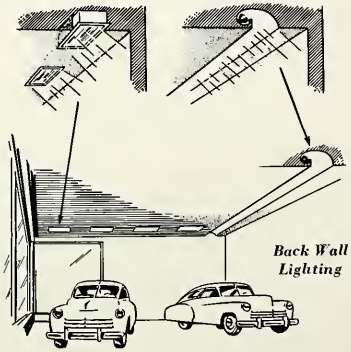
Showroom ceilings have an important effect on the illumination of displays. Ceilings affect both the quantity and distribution of light. Slanted ceilings are effective for redirecting natural light and they also are used with good effect in night-lighting. Built-in lighting is effective but requires architectural preparation. It should be specified in the first plans to keep costs low.



Direct Lighting



Direct and Indirect Lighting



Back Wall Lighting

Parking Stalls For Demonstrators

New cars operated by dealers and sales managers normally are kept on the premises for use as demonstrators. A stall that provides a 2′6″ aisle between cars provides easy access for passengers and drivers. A stall 9′ x 18′ is adequate for cars measuring 6′6″ x 17′6″.

Demonstrator parking stalls may be inside or outside the building. Inside parking is preferred, since it is easier to maintain the cars to high appearance standards. Cars that are sheltered from heat, cold and rain are more likely to create a favorable first impression.

New Car Storage

In planning a new building, the availability and cost of outside storage should be investigated as a basis for deciding whether car storage space should be provided in the building plan.

Dealers often can rent storage space for less money than it costs to provide it. Hence, storage of new vehicles in dealerships has naturally disappeared or is limited to space for only a few vehicles.

Dealers who do provide storage for new cars on their premises usually park them in minimum space. The cars are moved infrequently, so the emphasis is on space saving, rather than on time saving. In many instances cars are pushed, not driven into position, so as to save the space required for opening doors. Cars 6′6″ x 17′6″ require stalls 7′ to 7′6″ wide and 17′6″ long.

New Car Conditioning Stalls

New car conditioning involves the installation of accessories, plus cleaning and adjusting the car. A stall 10′ x 22′6″ provides adequate space for conditioning new cars that measure 6′6″ x 17′6″.

To determine the number of stalls required for new car conditioning, an average time per car should be established. The averaged time per car multiplied by the number of cars to be conditioned establishes the total stall-hours required. Stall-hours can then be allocated to specialized service stalls for lubricating, washing and polishing. The remaining stall-hours are applied to the adjustment and installation of accessories, for which specialized conditioning stalls may need to be provided.

Example

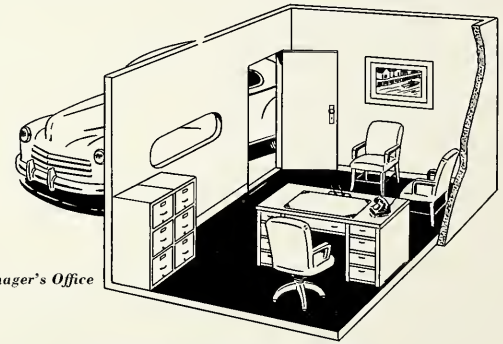
Average conditioning time per new car	8.0 hours
Multiply: by number of cars per year	x 400
Total conditioning time	3,200 hours
Subtract: specialized services — washing, lubrication, tune-up, etc. 2.5 hours x 400	1,000 hours
Remainder: Conditioning stall requirement	2,200 hours
Capacity of one stall (40 hours per week x 50 weeks per year)	2,000 hours

One conditioning stall, plus 200 hours annually from another stall, provides the 2200 hours of conditioning capacity.

New Car Delivery Stalls

If customers are brought to the new car delivery stalls to take possession of their cars, the stalls should provide sufficient space for inspection. A stall 9′6″ x 18′ is sufficient for cars 6′6″ x 17′6″. Delivery stalls visited by customers should be located in a section of the building where appearance standards are in keeping with the customers' regard for their new cars.

If the new car delivery stalls are not visited by customers, a 2′ access aisle between vehicles is adequate. This is a little more space than is necessary for close parking, but it is important to provide ample room to minimize chances for damage. A stall 8′6″ x 18′ is ample for cars measuring 6′6″ x 17′6″. Stalls not visited by customers may be located anywhere in the building. Only moderate circulation and accessibility are needed.



Sales Manager's Office

Sales Manager's Office

In most dealerships the new car sales manager's office is used for administering the affairs of the new car department and for conferences with important customers. It also may serve as a sales meeting room in dealerships employing only five to ten salesmen.

The sales manager's office should have a good selling atmosphere. This helps the dealer to hire the type of sales manager that is needed for the job and expresses to the sales manager the importance that is attached to his activity. The sales manager's office also should help to "sell" the sales manager to his salesmen and customers. A good atmosphere is complimentary to customers and stimulates a favorable response.

The sales manager's office should be located where it is readily accessible from the showroom. If possible, it should afford a view of the selling activities.

Sales Office

New car salesmen spend much of their time away from the dealer's place of business, but in closing a sale they may wish to bring customers to the dealership to see additional models or displays and to write up the order.

One or more offices may be provided for the joint use of all salesmen. These offices are supplied with sales literature and, in some instances, with motion picture equipment. The furniture usually consists of a small desk or table and two to four chairs.

Sales offices vary in size from 50 to 80 square feet. The smaller area is sufficient for personnel and equipment but larger offices sometimes are provided to secure better ventilation and atmosphere.

Sales offices should be located near the showroom. The route from the showroom to the salesroom should be as free and open as possible. Sales offices should not be located on a different floor level than the showroom.

Sales offices should be enclosed to secure privacy. Frosted windows may be used to shut out visual distractions. Soundproofing can be incorporated economically if included as a part of the initial construction. Charts and displays should not be located on the wall behind the salesmen's desk as they may distract the attention of customers.

Sales Office

Sales Meeting Room

Sales Meeting Room

In new car selling it is common practice to hold meetings to stimulate and inform salesmen. Sales presentations often are made with charts, motion pictures or slide films. The size of the room needed for such meetings varies with the number of salesmen employed. Dealers provide space for sales meetings in a variety of ways.

In small and medium-sized dealerships the office of the dealer or sales manager may be used as a meeting room. In some dealerships sales offices are divided by folding partitions that can be opened to convert several offices into one meeting room. Utilizing the same space for offices and meetings has an advantage from the standpoint of space economy, but there is inconvenience in having blackboards, charts and motion picture projectors in an office. Ordinary office equipment also interferes with the use of this space as a meeting room. Another problem arises in securing privacy in offices separated by movable partitions.

In large dealerships specialized meeting rooms frequently are provided. The amount of space needed can be calculated on the basis of 60 square feet for the first two persons, plus 12 square feet for each additional person.

USED CAR SALES

Space allocated to the used car department should be justified by its contribution to the reconditioning and selling of used cars.

Elements to be considered in planning a used car department are:

Used Car Sales Lot
Used Car Showroom
Used Car Lot—Sales Office
Used Car Parking Stalls
Used Car Reconditioning Stalls

Used Car Lot

How to plan a used car lot

In developing a used car lot a dealer should:

- Plan the used car lot to produce profit
- Plan the lot to display used cars
- Plan the used car lot in relation to traffic
- Select elevation features that enhance the display

Plan the used car lot to produce a profit

A used car lot should possess plan and elevation features that promote—*faster turnover*, at *lower cost*, and at *better prices*.

Values of a Used Car Lot

A good sales lot attracts *attention* by signs, lighting, decorations and other devices. It invites customers through features that create a pleasant *atmosphere*. It improves the *appearance* of cars by complementary settings. It promotes the *appraisal* of cars by customers through a layout that encourages inspection and demonstration.

Cost of a Used Car Lot

The investment in structures and treatments employed in used car selling should be related to the size and character of the market the dealer is endeavoring to reach, and to the quality and price class of the vehicles offered for sale.

Plan the used car lot in relation to traffic

In planning a used car lot a dealer should—

- Arrange used car displays in relation to traffic
- Locate the used car lot in relation to traffic

ARRANGE USED CAR DISPLAYS IN RELATION TO TRAFFIC

Used car lots should be planned so that cars can be arranged for good display to street and lot traffic.

Arrange Used Cars to Face Street Traffic

Customers can identify make and model most readily from a front view of cars. The front of a car also is high in appearance value and attracts attention by its brightness. Street-facing displays draw attention from sidewalk traffic and interest customers who hesitate to walk onto a used car lot unless they have seen some car in which they are interested.

Hence, in laying out a used car lot, it is desirable to arrange stalls so that the fronts of as many cars as possible will face street traffic. It is customary for the front row of cars to face the public street regardless of driveway arrangement.

When the driveway is at a right angle to the public thoroughfare, the appearance of the entire display can be improved by arranging stalls at a 45° to 60° angle to the driveway. Stalls so arranged present an attractive three-quarter front view of many cars to customers as they look down the driveway. Even though a lot is wide enough for 90° parking, angled stalls may be preferred for merchandising reasons.

Used Car Lot with Showroom and Canopy

Arrange Used Car Displays for Convenience to Lot Traffic

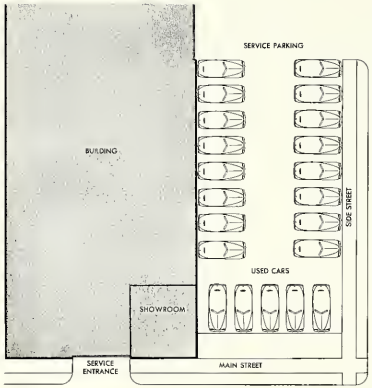
More prospects will inspect cars and request demonstrations if the required effort is kept to a minimum. Ease of demonstration and inspection are controlling factors in used car lot layout.

Customers can inspect used cars conveniently in display stalls that are 3′6″ wider and 1′0″ longer than the automobiles. Display stalls are too narrow or too short if cars must be rolled into the driveway to make an inspection.

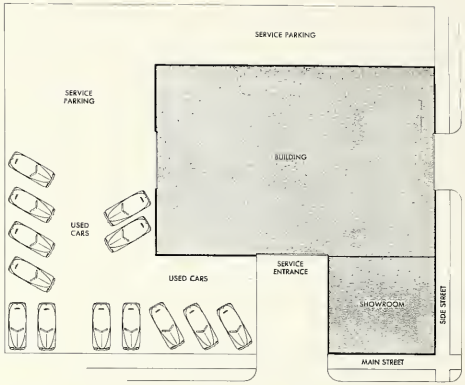
Depending on the size of the cars, they may be displayed in stalls that range from 8′ to 10′ in width, and from 17′6″ to 21′ in length. Stalls 10′ by 18′6″ provide ample space for displaying cars that measure 6′6″ by 17′6″.

Light trucks can be inspected in stalls of the size provided for passenger cars, but larger stalls are needed for medium and heavy trucks. Most states limit truck widths to 8′. Short to medium length trucks range from 16½′ to 22′ in length when equipped with bodies. (Longer single-units are operated in some territories.) A stall width of 10′ generally is considered adequate to display a truck chassis. The length of truck stalls is governed by the size of vehicles which the dealer takes in trade.

To facilitate demonstration, driveways should be arranged to provide the maximum number of stalls with direct access to a driveway. The most economical use of space is accomplished when each driveway serves two rows of stalls. The dimensions of the lot govern whether the driveway should be arranged at a right angle or parallel to the front property line. Angled stall arrangements facilitate demonstration, especially on narrow lots. The dimensions required for various stall and driveway combinations are discussed in the section relating to Service.



Used Car Lot with Main and Side Street Frontage



Used Car Lot with Main Street Frontage

LOCATE THE USED CAR LOT IN RELATION TO TRAFFIC

A used car lot should be located where as many cars as possible can be displayed to as much traffic as possible.

Corner Property with Heavy Side Street Traffic

With a corner site and heavy side street traffic, a combination of main street and side street frontage may be used to display used cars. Where this is done, the building should be inset far enough from the side street to accommodate a driveway and one or two rows of cars. The used car displays should be set back far enough from the main street so as not to obstruct the view of the new car showroom.

Corner Property with Light Side Street Traffic

With a corner site but unimportant side street traffic, the used car lot should be located where it can attract customers from main street traffic. If ample main street frontage is available, the building may be located on the corner and the used car lot may be placed beyond the building. If main street frontage is limited but the property has depth, the new car showroom may be located at the corner and the remainder of the building may be set back far enough so that used cars can be displayed in the area between the sidewalk and the service portion of the building.

Property Within the Block

Inside lots can display cars only to one street. Frontage for display can be gained by locating the service department on the back portion of the lot if the property has sufficient depth. Placing the used car lot on the side of the building toward traffic protects visibility.

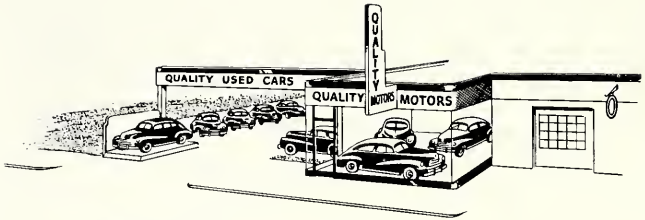
Plan the lot to display used cars

Used car selling requires more display space for advertising and merchandising than is needed for new car selling.

More frontage is needed for advertising because a used car stock consists of many makes, styles and year models, and the inventory changes continually, so only a display of several cars can be representative of the inventory.

More space is needed for merchandising display because each used car has its own individual value, making it necessary to keep the entire inventory on display.

In used car selling it is always necessary to demonstrate the particular car in which a customer is interested, so it is necessary to provide space to demonstrate each vehicle.



Foreground Signs

Select elevation features that enhance the display

Used car displays can be more effective by a good selection of elevation features. Features that help to change an ordinary lot into a sales lot are:

- Foregrounds
- Backgrounds
- Grading and surfacing

FOREGROUNDS

Signs, pylons and canopies provide foreground identification and decoration for a used car display.

Signs

Many used car purchasers prefer to buy their cars from authorized new car dealers because they recognize that these dealers acquire many of the best used cars in trade for new cars. Authorized dealers have a used car merchandising advantage which they can emphasize by identifying their used car sales lots with their new car businesses.

When a dealer's used car lot adjoins his main building, foreground signs can be employed to show the association between the new and used car activities. Foreground signs for the used car lot can be similar in design, materials and color to the sign area of the dealer's building. A sign area extending across the front of the dealer's building and the front of the used car lot makes the entire dealer property appear larger and more impressive. Such sign structures can also support a lighting system for accent illumination of the forward row of used cars.

Pylons

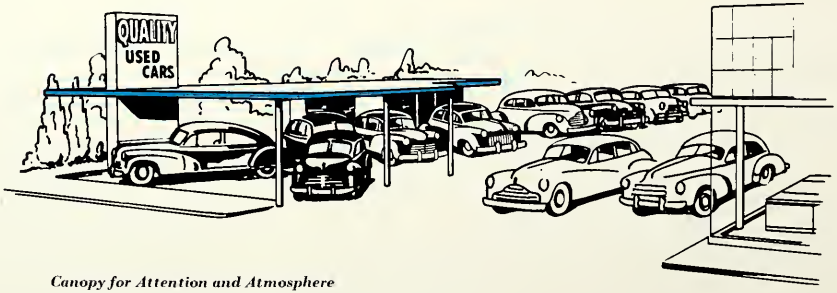
Decorative pylons bearing the name of the dealership and trademark of the manufacturer are also useful and economical for attracting attention and establishing identity. They are adaptable to separate used car lots operated by a dealer. Pylons can be used separately or as supports for overhead signs.

Canopy or Pavilion

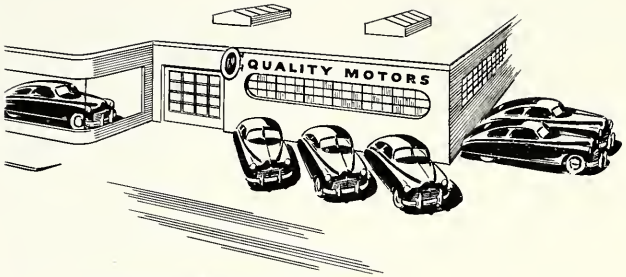
Canopies do the work of a foreground sign and also provide shelter for customers, employes and product displays. A canopy finished in decorative colors and materials, and equipped with signs and lights, attracts attention. A selling area sheltered against sun and rain presents an atmosphere that is more comfortable for many additional hours every year. Products protected from snow and rain-spotting present a better appearance. A canopy also provides better conditions for appraisal—it shelters customers from the weather while they look at the exteriors of the cars, and protects them from oppressive solar heat as they enter cars for demonstrations or inspections of the interiors.

Since attracting attention is an important function of a canopy, it should be placed over the section of a lot that can be seen by the largest volume of passing traffic. The canopy should have a sign area that is visible to approaching traffic and that can be effectively illuminated. Its design should be integrated with the architecture of the main building, if the structures are on adjoining plots. Sometimes canopies are designed to extend over the bodies of cars, but not over the hoods. This is done to provide cool interiors without reducing the daytime brightness on the front of the displays.

The canopy can be supported by decorative pylons that help to attract attention of street traffic. Particular care should be exercised in locating supporting columns so that they will not obstruct vehicle circulation, which is essential to demonstration.



Canopy for Attention and Atmosphere



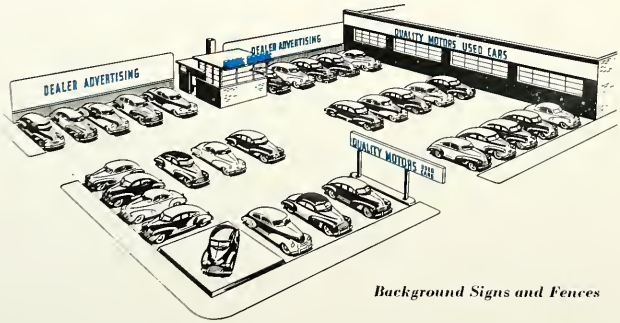
Background Walls for Used Car Display

BACKGROUNDS

Background signs, fences or walls can provide good settings for the display of used cars. When finished in white, or colors having a high reflection factor, they give a "bounce" to natural and artificial light which increases the apparent brightness of the used car display at low cost. Brightness is important in attracting attention and improving atmosphere.

Signs

Signs can be used to attract attention and improve the atmosphere of a used car lot. They may serve as screens for shutting off undesirable views. Signs should be placed along the sides and the rear of a lot and erected above car height. They should be lighted at night to make their message visible and also to provide a brighter setting for the displays.



Background Signs and Fences

Fences

Board fences 4½′ to 5′ tall add atmosphere and provide good contrast for used car display. Free-standing portable fences can be used to separate a used car display from a service parking area that is located behind it.

Walls

Where the outside wall of a dealer's building adjoins the used car lot, it can be designed to provide a good background for car display and to carry signs advertising the dealership or the used car activity. Walls form a better background for a used car display if windows are placed above the height of cars. However, before restricting window area, consideration should be given to the effect of reduced natural lighting on activities within the building.

Used Car Stage

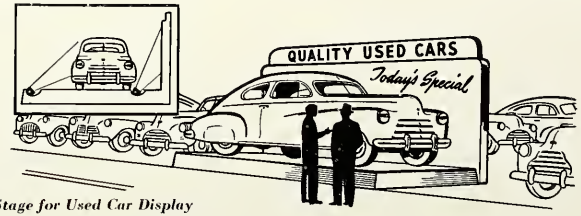
A stage which raises a car off the ground is helpful in attracting and focusing attention. A car on a stage can be seen by passing automobile traffic because the line of vision is less obstructed by cars parked at the curb. A stage focuses attention on a particular car and often makes possible a quicker sale or a better price.

A stage can be finished in colors that reflect more light than car finishes do; thus increasing brightness and directing additional attention to the entire display. The stage can be equipped with footlights to increase interest and attract attention during the evening hours when many used car selections are made.

GRADING AND SURFACING

Some dealers elevate their used car lot 6″ to 18″ above the level of the sidewalk. This attracts attention to the display and reduces the extent to which curb parking interferes with visibility. Grading also is a factor in improving drainage. Good drainage can be provided on a paved lot by sloping the surface toward a central driveway drain at the rate of ⅛ of an inch to one foot.

A surfaced sales lot is inviting to customers under all weather conditions, and also reduces the cost of maintaining car displays. The soil conditions and rainfall in most localities make some surface treatment of the used car lot desirable. In choosing a surfacing treatment, dealers should consider dusting, heaving with frost, the effect of heat, and the cost of maintenance. Materials used for surfacing used car lots are bituminous products, crushed rock, soil cement or concrete.



Stage for Used Car Display

Sales Office—Used Car Lot

A sales office on a used car lot provides shelter for salesmen and space where they can close a sale with customers.

Sales Office

One or more offices may be needed where salesmen can confer with prospects in closing sales. These sales offices usually occupy an area of 50 to 60 square feet. If sales offices are placed behind the shelter room they are more protected from noise and other distractions and they do not obscure the salesmen's view of the lot. If only one salesman will be on duty, one room having the combined characteristics of a sales office and shelter is sufficient.

Shelter

On lots where several salesmen are on duty, a shelter room with a separate sales office is needed. The size of the shelter room should be relative to the number of salesmen who will be working at one time. The shelter room should be located so that its windows command a clear view of the displays. A shelter room that is elevated two to three feet above lot level enables salesmen to see over the cars and observe persons entering and leaving the lot.

Heating Room

A separate room for heating equipment may or may not be needed depending on the climate and type of equipment.

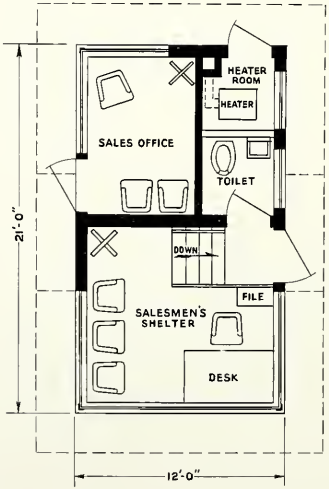
Restroom

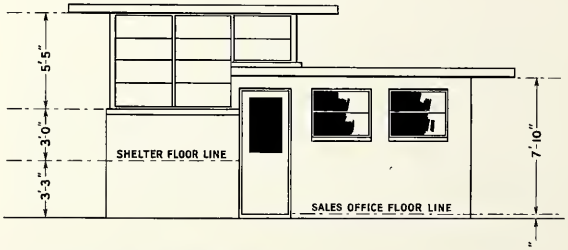
A restroom is essential if the used car lot is located away from the dealer's main building. Even when a used car lot adjoins the main building, it is desirable to incorporate a restroom in the used car sales building because the used car sales facilities often are operated after hours when the main building is closed.

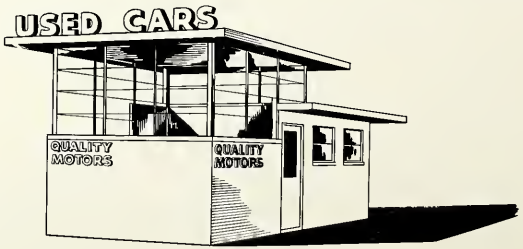
Elevation

When a dealer's sales lot adjoins his building, the association between the new and used car activity can be emphasized by applying the designs, colors and finishes of the main building to the used car sales office.

The walls and partitions of sales offices should be designed and constructed to protect occupants from noises and visual distractions originating inside or outside the shelter.







Used Car Showroom

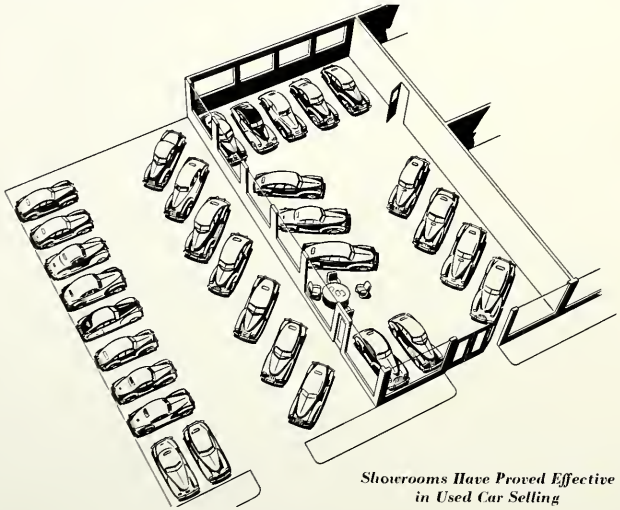
Some dealers report that when current and late model used cars are displayed in an enclosed showroom, they meet with a more ready demand and at better prices. Inside salons (without street exposure) are an effective merchandising aid in selling high-priced used cars.

Used car showrooms have similar purposes to new car showrooms but they differ in their point of emphasis. New car showrooms emphasize advertising values and are designed to attract attention. Used car showrooms emphasize merchandising and are planned with particular attention to features that influence inspection and demonstration.

Locating a Used Car Showroom

Street frontage is helpful but not essential to a used car showroom that is planned primarily as a merchandising tool. Frontage that is available for used car display should be allocated to the lot or the showroom, whichever can attract most attention. Property depth may be used to place cars on merchandising display.

A used car showroom that does not connect directly to the street should be readily accessible from the used car lot and new car showroom. Accessibility to pedestrian traffic is desirable because they stop and look at displays.



Showrooms Have Proved Effective in Used Car Selling

Layout of the Used Car Showroom

To promote demonstration, the showroom should be designed with stalls and aisles arranged to make vehicle circulation appear easy. Otherwise, customers may not ask for a demonstration, feeling that such a request might obligate them to purchase the car, or that getting the car out of the showroom might require more time than they want to spend.

Enough space should be allowed between and behind displays so that complete observations and inspections can be made without moving cars.

Showroom Elevations

The elevation features that are important to a new car showroom also are important to a used car showroom. The appearance standards of a used car showroom should be high enough to complement the appearance of good quality used cars. Showroom appearance should indicate the dealer's regard for the value of the merchandise displayed, but appearance should not be stressed to the point where it might suggest a contrast between the setting and the merchandise.

Used Car Parking Stalls

As used cars are taken in trade, it is necessary to park them where they can be cared for until they are reconditioned and placed on display. Stalls assigned to used car parking need not adjoin directly with a driveway or aisle as the "turnover" in these stalls is relatively infrequent. Parking stalls usually are located on an open lot. The need for fencing should be considered when outside storage is used.

Used Car Reconditioning Stalls

The number of stalls needed for used car reconditioning depends upon the dealer's plans for reconditioning and selling used cars. Some dealers sell used cars at wholesale and do little reconditioning. Some rent space for reconditioning during periods of business activity and release the space during periods of recession. Some dealers recondition used cars in the space provided for customers' cars while others set up a separate department.

A reconditioning department may consist of specialized stalls within the service department or space in a separate building. A specialized department may perform both appearance and mechanical work; or specialization may be applied only to appearance work, while mechanical work is performed in the customer service department.

Whether a dealer prefers to recondition used cars with his service facilities or with specialized facilities, it is important that the "stall-hours" required for reconditioning be computed, and that the necessary space be provided either as additional capacity to service stalls or as specialized reconditioning stalls. Reconditioning stalls usually are of the same specifications as body sheet metal stalls.

SERVICE

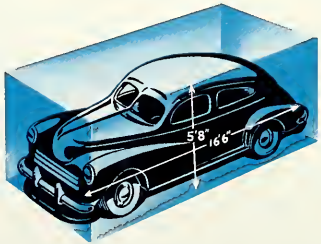
It is the responsibility of the service department to:

—render quality service to car and truck owners at prices both reasonable to the customer and profitable to the dealer;

—Provide "internal service" at the lowest possible cost consistent with quality.

Although automobile dealers have a common purpose in service, they differ in the kinds of vehicles they service, and in the methods and equipment they use. Hence, an analysis of service plans is a prerequisite to planning service space. The following sequence is helpful in analyzing service and planning space requirements:

- Service Stalls
- Aisles and Aprons
- Ramps and Elevators
- Service Rooms and Offices
- Service Department Layout
- Service Elevation Features

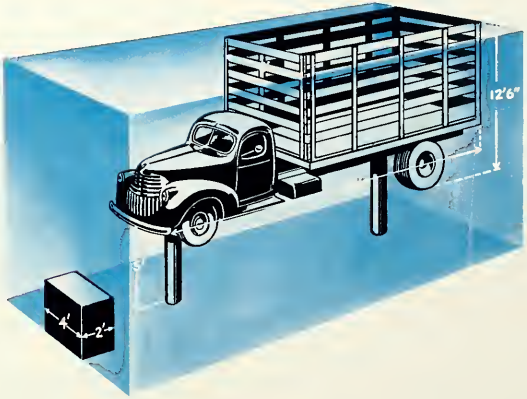


SERVICE STALLS

Service stalls should be large enough for operating efficiency and small enough to conserve land and buildings. Standardized stall specifications or those copied from some other dealership may serve as a guide in planning, but stall designs should be adjusted to the vehicles and methods of the individual dealer.

Planning service stalls involves five steps:

- Determining total number of service stalls required
- Specifying purpose(s) of individual stalls
- Visualizing stall arrangement
- Analyzing stall dimensions
- Planning individual service stalls



Stalls vary widely in use, content and size

DETERMINING TOTAL NUMBER OF SERVICE STALLS REQUIRED

In determining service stall requirements a dealer should be guided by his past experience and the recommendations of his car factory. Consideration should be given to market trends and to variations in volume due to seasonal or cyclical influences. Other factors to be weighed are suggested by the following procedure:

Step 1) Estimate annual *man-hours;*

Hours of customer labor
Plus: Hours of new car conditioning
Plus: Hours of used car reconditioning
Equals: Annual man-hours.

Estimate the potential service volume in terms of man-hours per year as a basis for determining the number of stall-hours needed. Man-hours for "Internal Service" should be added unless separate facilities are provided for new car conditioning and used car reconditioning.

Step 2) Establish annual *stall-hours* needed:

Annual man-hours
Less: Man-hours for extra men
Equals: Annual stall-hours needed.

The number of man-hours is equal to the number of stall-hours if only one man works in each stall. If two or more men work in some stalls, the man-hours for the extra men should be deducted from the total man-hours to establish the number of stall-hours needed.

Step 3) Determine *maximum* annual capacity of each productive stall in hours:

Hours shop is operated each week
Multiplied by: 52 (weeks)
Less: National and local holidays
Equals: Maximum annual capacity of each stall in hours.

The maximum capacity of each service stall is determined by the number of hours per year that the shop is operating. The number of stall-hours obtainable from stalls operating for a different number of hours per week (less six national holidays) are:

Hours per Week	*Annual Stall-Hours*
40	2,040
44	2,244
48	2,448
52	2,652

Step 4) Determine *actual* annual capacity of each productive stall in hours:

Maximum annual capacity of each stall in hours
Multiplied by: Percentage of time stalls are in actual use
Equals: Actual annual capacity of each productive stall in hours.

Service stalls are not operated continuously due to the uneven flow of work, the absence of employes, and differences in management and methods. Stalls equipped with specialized machines may show a higher percentage of unapplied time than general purpose stalls. The actual capacity of service stalls ranges from 75% to nearly 100% capacity.

Step 5) Determine number of *productive stalls* required to supply needed stall-hours:

Annual stall-hours needed (Step 2)
Divided by: Actual annual capacity of each stall in hours (Step 4)
Equals: Number of productive stalls required.

Step 6) Determine number of service *parking stalls* needed:

Number of productive stalls
Multiplied by: Proportion of parking stalls to productive stalls needed
Equals: Number of parking stalls needed.

Parking stall requirements usually are measured in proportion to productive stalls. Ratios ranging from ½ to 1, up to 3 to 1, are common. The number of service parking stalls needed varies with the buying habits of customers. A lower than average number of parking stalls is needed where customers wait or run local errands while their cars are being serviced. A higher than average number is needed in dealerships near factories or office buildings where customers leave their cars all day for service.

Step 7) Determine *total* number of service stalls required:

Number of productive stalls (Step 5)
Plus: Number of parking stalls (Step 6)
Equals: Total number of service stalls required.

SPECIFYING PURPOSE(S) OF INDIVIDUAL STALLS

Having determined the number of stalls to be provided, a dealer should designate the purpose for which each stall is to be used. This provides the basis for designing stalls to dimensions that save space and promote efficiency. In classifying stalls according to purpose, dealers should designate:

Type(s) of operation to be performed in each stall

Type(s) of vehicles to be serviced in each stall.

Type(s) of Operation to be Performed In Each Stall

Where stalls are used only for specific types of operations, the dimensions of each stall can be adjusted to the purposes for which it is used. The extent to which it is practical to classify operations and to specialize service stalls depends on service volume and gains in operating efficiency. Excessive stall specialization causes a lack of flexibility in the use of space and results in increased unapplied stall time.

In large passenger car dealerships specialization of stalls extends to work requiring stationary machines and enclosures, and also to work that can be done with portable tools and fixed general equipment, such as, hoists and benches. In a large dealership stalls might be specialized as follows:

*Frame stall	Heavy repair stall
*Front-end stall	Sheet metal stall
*Brake stall	Trim stall
*Lubrication stall	Polishing stall
*Wash rack	Paint preparatory stall
*Paint booth	New car conditioning stall
Motor analysis stall	Used car reconditioning stall
Quick service stall	Reception stall
Tire repair stall	Parking stall

In dealerships of smaller volume, two or more types of work may be assigned to an individual stall. Practical combinations are:

*Frame and front-end stall
*Lubrication and tire stall
*Wash rack and paint booth
Motor analysis and quick service stall
Heavy repair and brake stall
Sheet metal and trim stall
Polishing and paint preparatory stall
Conditioning and reconditioning stall
Reception and parking stall

In exclusive truck service stations specialized stalls are provided for work requiring stationary machines or enclosures (see above lists). Operations that can be done with portable equipment are performed in general purpose stalls by specialists who move their equipment from one stall to another. Several specialists often are assigned to one stall at the same time to get trucks back in operation more quickly. The extensive use of general purpose stalls also reduces the problem of maneuvering large vehicles through the shop.

**Stationary machines or enclosures.*

Type(s) of Vehicles to be Serviced In Each Stall

In exclusive passenger car service it is the practice to design all stalls around one set of vehicle dimensions that are sufficient for all cars of a particular make, or for a majority of all passenger cars.

In truck service and in combination car and truck service, considerable space may be saved by designating which stalls should accommodate the largest vehicles and which stalls may be of lesser size.

It is usual to specify that stalls containing stationary equipment or enclosures will be used to service cars and trucks of all sizes. This avoids duplication of space and equipment. General purpose stalls can be of several dimensions for—

Cars and light trucks,
Medium and heavy trucks and tractors,
Tractor-trailers and extra long trucks.

The proportion of extra long and medium stalls should be greater than the percentage of such work to assure flexibility in the use of space.

VISUALIZING STALL ARRANGEMENT

Visualizing what a stall will contain and how it will be arranged is an important step toward providing stalls of the right size and shape. Service stalls are classified according to the arrangement of their content as "Conventional Stalls" or "Drive-Through Stalls."

Conventional Stalls

Conventional service stalls are open only at one end. Vehicles are driven in and backed out or vice versa. The work bench and other equipment usually is arranged at the head of the stall. This stall arrangement is generally preferred for servicing passenger cars and trucks of normal length.

Drive-Through Stalls

In truck service it is considered good practice to provide drive-through stalls for servicing long single-unit trucks and for providing quick service to tractor-trailer units. Drive-through stalls are arranged so that they can be entered from one end and vacated from the other. In these stalls a portable tool cart may replace the work bench, or bench space may be provided between stalls.

ANALYZING STALL DIMENSIONS

In deciding the dimensions of stalls it is important to consider factors that affect—

Stall width	Stall height
Stall length	Stall depth

Stall Width

The width of service stalls is composed of two principal components: "vehicle width" plus "width between vehicles."

Vehicle Width

The width of a passenger car stall may be predicated on the width of the majority of cars, or the width of the make which the dealer intends to service. Passenger cars range from 6′ to 6′8″ in width. The majority are 6′6″ or less in width.

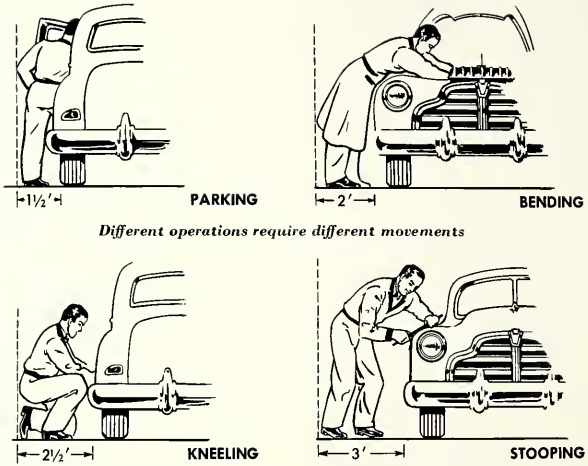
Medium and heavy trucks range from 6′ to 8′ in width. Dealers who service a high percentage of medium and heavy trucks may wish to design all stalls around an 8′ vehicle width to assure flexibility in the use of space. Light commercial units, however, constitute over 50% of commercial registrations, hence, some dealers may economize on space by planning a portion of their general purpose stalls for vehicles measuring 6′6″ in width.

Width Between Vehicles

The proper space to be allowed between vehicles depends upon the purpose for which a stall is used. The use of the stall determines the space needed for workmen, equipment, maneuvering of vehicles and merchandising.

In passenger car service the widths between vehicles are adjusted closely to the purposes of each stall. The space between vehicles varies from 1½′ between parked cars to as much as 5½′ between cars in some productive stalls.

The space allowed between a vehicle and a wall or other fixed object is usually



Different operations require different movements

6″ to 1′0″ less than is allowed between vehicles in adjoining stalls.

Work space may range from 1½′ to 3′. An additional width of 6″ to 12″ is needed to allow mechanics in adjoining stalls to pass or move equipment without interfering with each other. In stalls where customers do the driving, extra width eases maneuverability and relieves customers' apprehension for the safety of their cars. Typical widths for passenger car stalls are illustrated later.

In exclusive truck service it is usual to allow sufficient space between trucks in adjoining stalls to permit performance of all kinds of operations. In productive stalls 4′ is allowed between vehicles and 3′6″ between a vehicle and a fixed object. In parking stalls it is usual to allow 2′ between vehicles or fixed objects.

Stall Length

The proper length of a service stall depends on three factors: vehicle length, work space and space for equipment.

Vehicle Length

In exclusive passenger car service, it is usual to apply one car length factor to establish the length of all stalls. The car length may be that of the make serviced, which can range from 16′6″ to 19′0″, or it may be 17′6″ which is adequate for a high percentage of all passenger cars.

In truck service, a distinction may be drawn between the length of specialized and general service stalls. Specialized stalls that contain fixed equipment or enclosures are planned around the longest vehicles being serviced in significant

volume. The length of general stalls may be adjusted to trucks of different lengths:

Light trucks up to 18′ in length

Medium and heavy trucks and tractors up to 22′

Long single unit trucks up to 30′

Tractor-trailers and single unit trucks from 40′ to 65′ (legal limits).

Work Space A work space 3′ long is allowed across the front of each productive stall.

Equipment In conventional stalls 2′0″ is allowed across the front of stalls for a merchandiser or work bench and for portable equipment. Stalls containing platform type frame or front-end machines require extra length for ramps, but do not require bench space at the head of the stall.

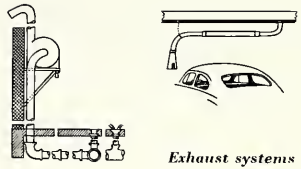
Stall Height

The height of service stalls is determined by two factors: the height of vehicles and the height of equipment. Passenger cars are less than 6′ tall. Truck heights vary from 6′ to 12′6″. Vans and trailers operated by commercial haulers are usually of maximum height, whereas, tractors and most privately operated trucks are 10′6″ or less in height.

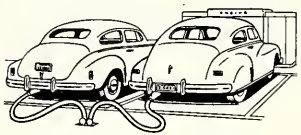
Standard car hoists raise vehicles 5′ or 5′6″. Stalls equipped with hoists should provide this amount of clear height in addition to vehicle heights.

Platforms used with front-end and frame machines raise vehicles 18″ to 24″ above floor level.

In single story buildings it is possible to obtain the desired clear heights between trusses. In multi-story buildings it is the usual practice to provide sufficient clear heights on the ground floor to accommodate trucks and stalls equipped with hoists.



Exhaust systems



Stall Depth

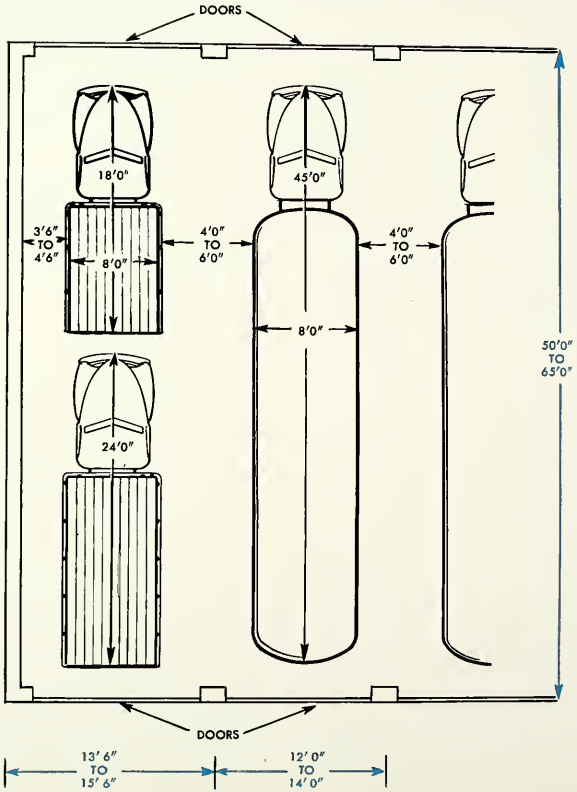
Stalls containing hydraulic hoists or pits occupy space below floor level. Hydraulic rams extend 8′ to 9′ below the floor surface. Pit installations are 42″ to 60″ deep, plus construction. Stalls containing hoists or pits are located over unexcavated portions of the building.

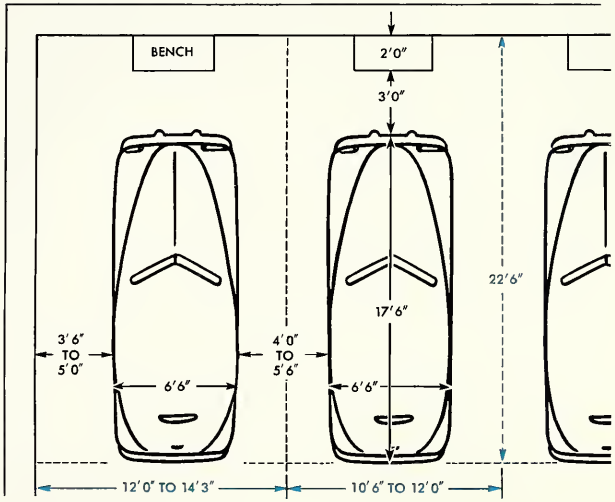
A system of underground conduits may be provided to carry away exhaust fumes. Installing such equipment before the floor is laid results in substantial savings. Overhead systems also are available.

PLANNING INDIVIDUAL SERVICE STALLS

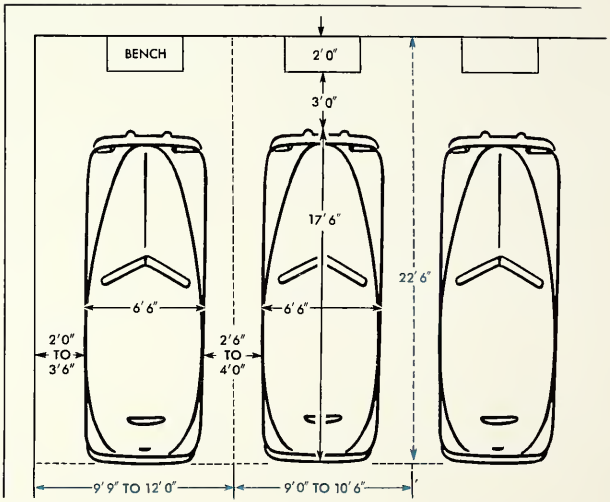
The best arrangement and dimensions for each service stall should be determined in advance of making a service department layout. Deviation from preferred proportions or features can then be limited to situations where other factors appear more important. The typical stall plans that follow are designed around cars measuring 6′6″ x 17′6″ and trucks 8′0″ x 22′0″.

Drive-Through Stalls





Body repair stalls



Mechanical repair stalls

Body Repair Stalls

Body repair stalls are provided for sheet metal straightening, paint preparatory work, polishing, trim repairs, replacement of glass and hardware, new car conditioning and used car reconditioning.

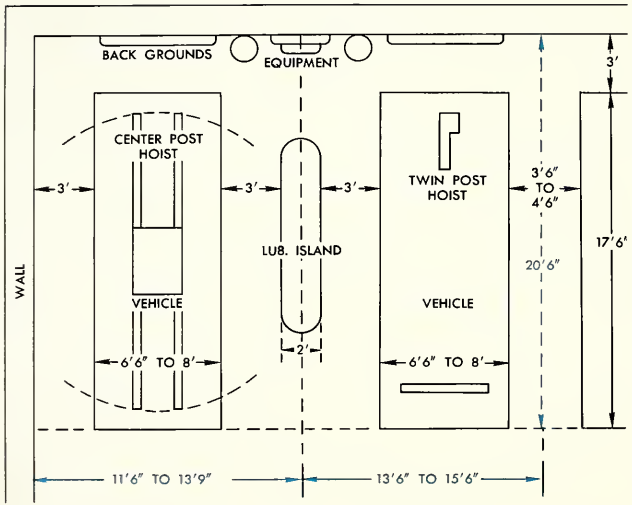
Ample space is needed between cars because most body work is performed on the outer surfaces of cars; platforms, machines and equipment are moved between cars, and much work is done in a stooping or bending position.

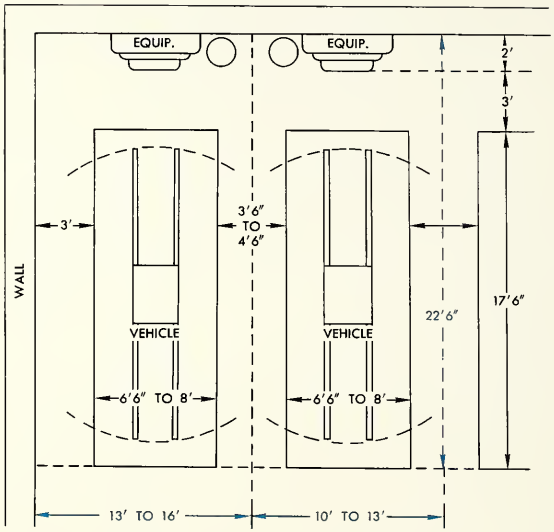
Some body stalls are equipped with hoists to position work more comfortably. Stalls so equipped should be located between trusses and over unexcavated areas to provide needed clear height and depth.

Mechanical Repair Stalls

Mechanical repair stalls are used for light and heavy repairs. They also may be used for specialized operations such as brake work, rear axle work, electrical service, radio service or transmission and clutch service. When mechanical stalls are specialized they should be large enough to contain any machines or equipment that are to be set up in the stall. Stalls that are used for repairs underneath cars often are equipped with hoists, which have clear height and depth requirements.

Narrower stall widths are suitable for light repair operations and those performed under the car. Wider stalls are needed for brake work and engine operations.





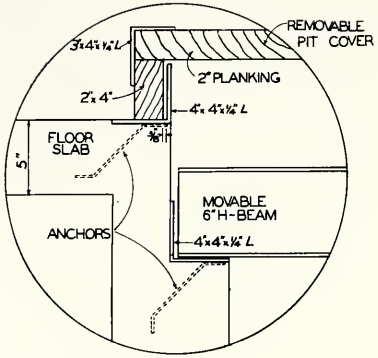
Lubrication Stall

Lubrication stalls are equipped either with a hoist or pit to position vehicles so they can be lubricated conveniently.

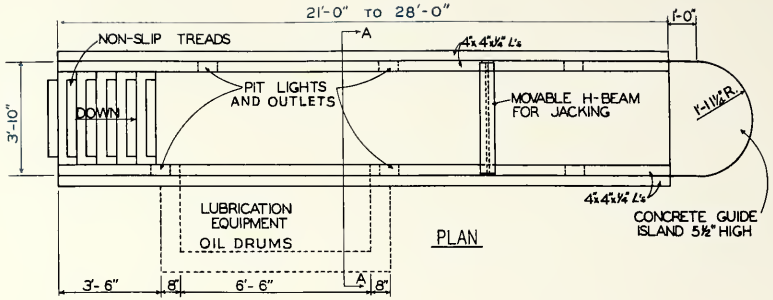
Hoists are in general use for lubricating passenger cars and trucks of average length. Many center post hoists are used in lubrication stalls. These hoists can be rotated like a turntable but it is impractical to provide sufficient stall width to permit full rotation of a hoist and vehicle unless it speeds loading and unloading sufficiently to make such a use of space worthwhile.

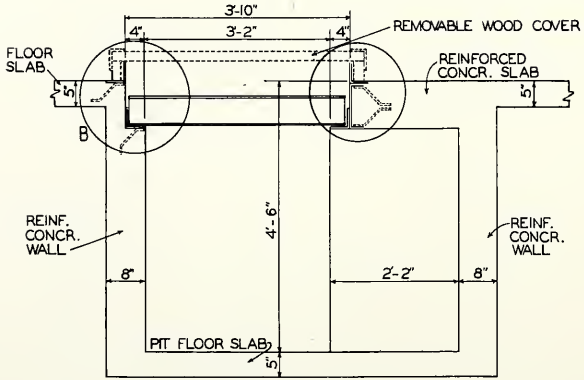
Many types of lubricant dispensers and storage containers are available. The type of equipment used influences the stall dimensions required. If length is needed more than width in the stalls, an island-type dispenser, located between stalls, permits the cars and hoists to be positioned farther forward. Where an island-type dispenser is used, 6′ to 8′ should be allowed between cars to provide space for the equipment and freedom of movement on both sides. If width is needed more than length, dispensers and containers can be located at the head of the stall. Lubricants may also be dispensed from reels mounted overhead. This equipment saves floor space and facilitates cleaning.

Oils and lubricants may be stored in containers within the stall or they may be supplied under pressure from containers elsewhere in the building. The method used for bringing lubricants to the stall will influence stall dimensions.

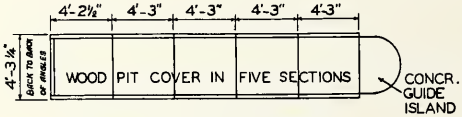


SECTION B





SECTION A-A



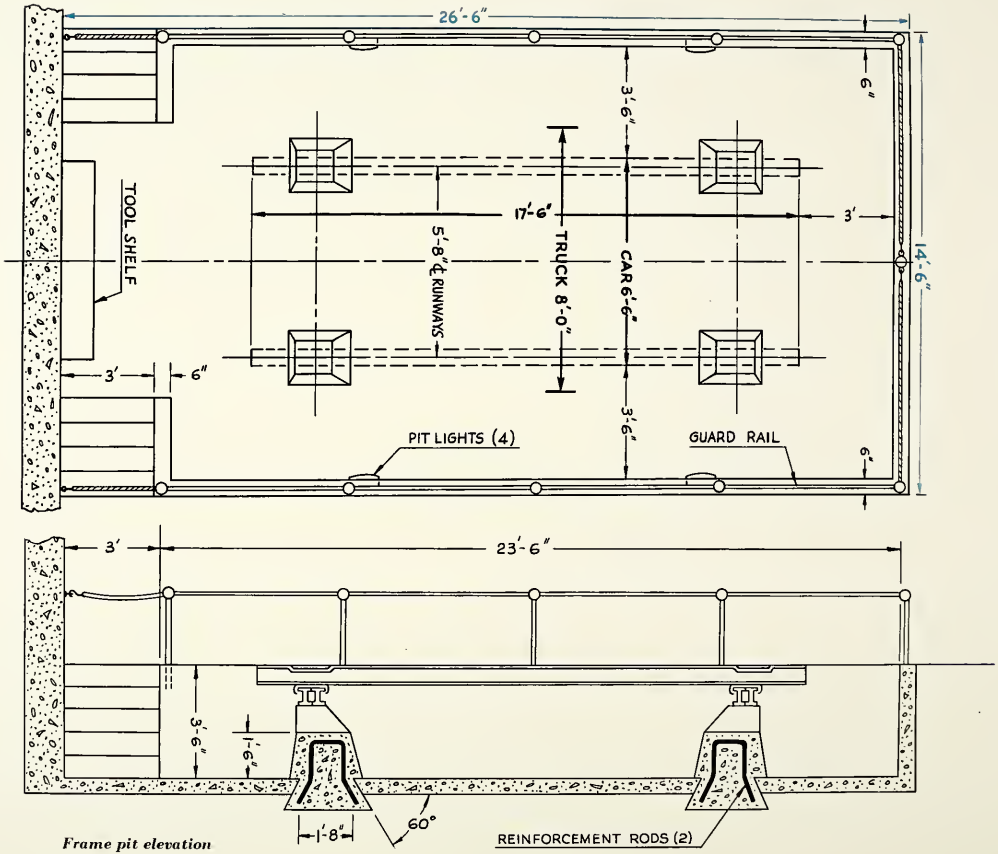
REMOVABLE PIT COVER DETAIL

Truck Lubrication and Repair Pit

Pits sometimes are provided for lubrication and other work that is performed underneath trucks. A pit is particularly useful for long trucks and for quick service on tractor-trailer units. One is sometimes incorporated into drive-through stalls. A compartment for lubricant storage may be incorporated in a pit.

Forced ventilation should be provided in pits to eliminate accident hazards.

Frame pit plan



Frame pit elevation

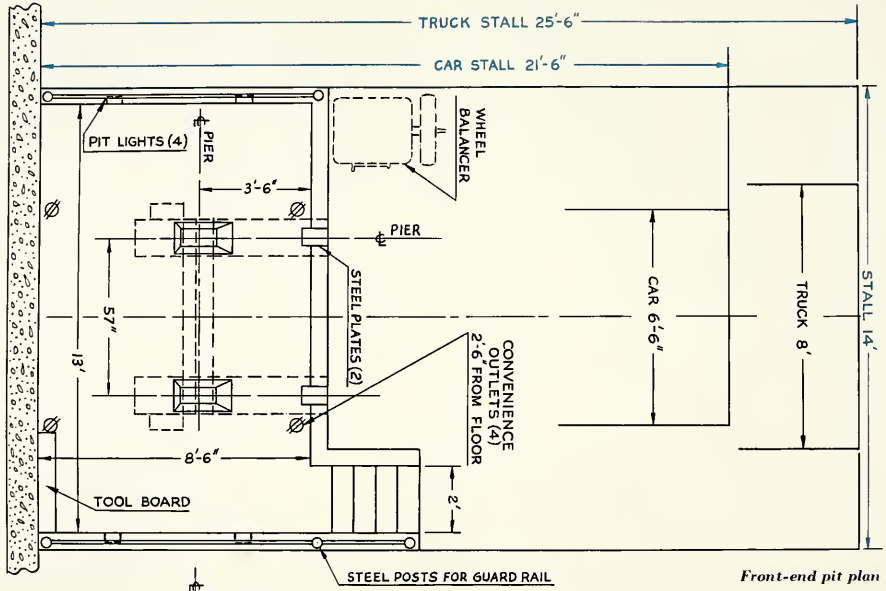
Frame Repair Stall

Frame repair equipment is of two types, the platform type which is elevated above the floor, and the pit type which sets flush with the floor.

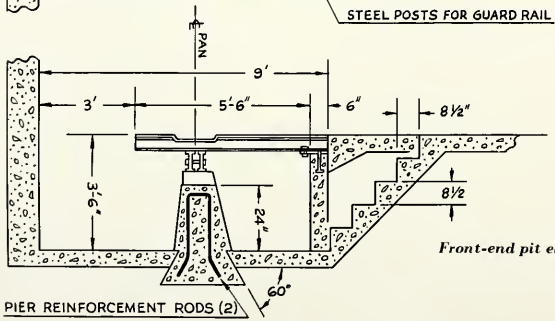
In exclusive passenger car service platform type equipment frequently is specified because a machine of adequate length can be installed without interfering with internal traffic, and the cost of the installation is less.

In truck service the pit type installation has the advantage of being adaptable to long trucks without requiring an exceptionally long stall. Further, the pit installation can be used in locations where the platform equipment would not leave sufficient clear height below trusses for tall trucks.

Dirt tends to blow into open pit installations. Less dirt collects in pits that are surrounded by a four-inch curb, except at points which must be left open for stairs or runways. Shaping the curb with a coved or concave outer surface facilitates sweeping around the pit.



Front-end pit plan



Front-end pit elevation

Front-End Stall

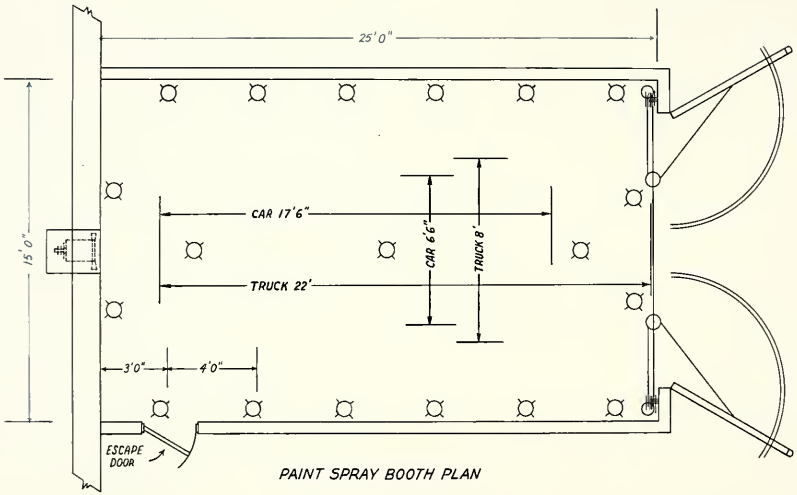
Front-end equipment is available for either a pit or platform type installation. The pit type installation positions work at a more convenient height than the platform installation. With a pit installation it is unnecessary to provide an extra long stall to accommodate the inclined ramps leading from the floor to the platform (approximately 7 feet).

A pit installation has marked advantages over a platform installation for servicing trucks and tractors. More accurate front-end alignment is possible if each vehicle is adjusted while carrying the average load at which it is operated. With only temporary obstruction of an aisle, extra long trucks can be positioned over a pit. In truck service it is desirable to locate a front-end pit at the forward end of a drive-through stall so the front-end mechanism on tractors can be adjusted with the trailer attached.

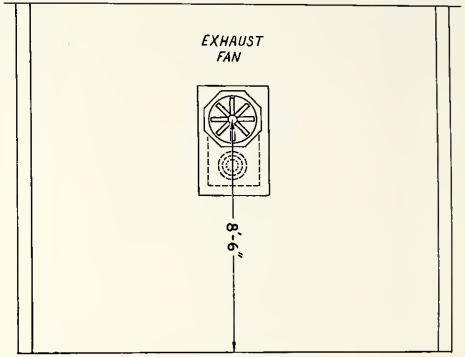
In the pit illustrated, the stairs are located on the left side rather than at the front. The left side location lets the operator move quickly between the front wheels and the steering wheel which is often necessary in making front-end adjustments. It also reduces the stall length requirement.

An additional refinement that can be incorporated in this pit design consists of a second pit level running lengthwise under the center of the car. The floor of the second pit should be 12" to 15" below the floor of the main pit to enable the operator to work under the car without stooping.

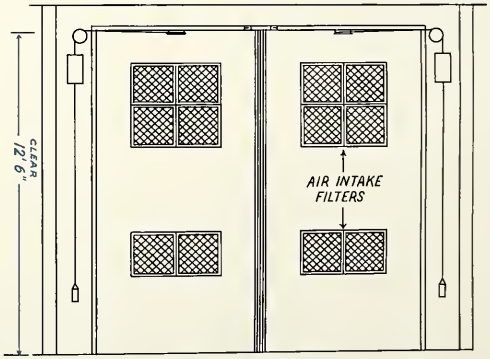
A curb to keep out dirt may be constructed around the pit as discussed under "Frame Repair Stall."



PAINT SPRAY BOOTH PLAN



INSIDE FRONT ELEVATION



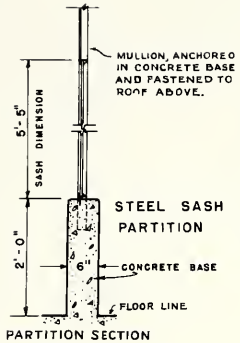
INSIDE REAR ELEVATION

Paint Spray Booth

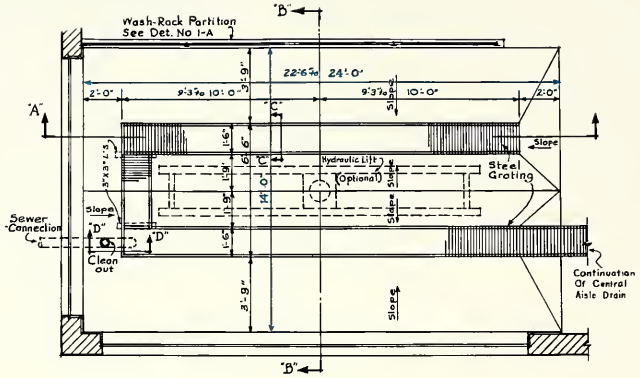
A paint spray booth should be designed to satisfy several requirements. It should provide ventilation to carry off toxic fumes. The incoming air should be filtered to provide a dust-free atmosphere. The booth should meet the requirements of local building and safety codes. Good lighting is necessary for quality work. Easy in and out travel encourages workmen to use the booth on small jobs.

Small particles of paint are carried in the air exhausted from a paint spray booth, so care should be exercised in the location of the exhaust outlet and if necessary, the conduits should be baffled to avoid damage to other property.

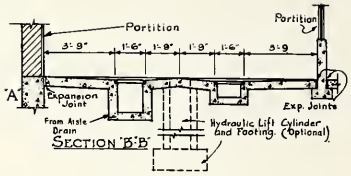
Spray booths intended for tall trucks should have an inside height of 15′ to permit spraying of tops. An inside height of 9′6″ is adequate for passenger cars.



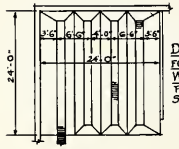
PARTITION SECTION



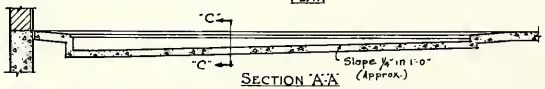
PLAN



SECTION "B"-"B"



DIMENSIONS FOR 2-CAR WASH-RACK.
For each additional Stall add 10'-0"

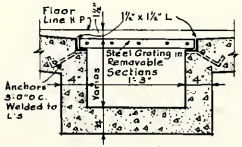


SECTION "A"-"A"

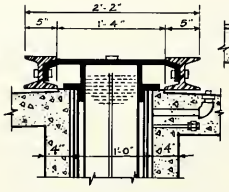
Wash Rack

A wash rack should provide sufficient space for the operator to work in any position and to stand away from the car while spraying it. The floor can be well drained by two channels running parallel to the length of the car and covered by an open grating. Grease and dirt draining from a wash rack should be trapped before reaching enclosed sewerage conduits.

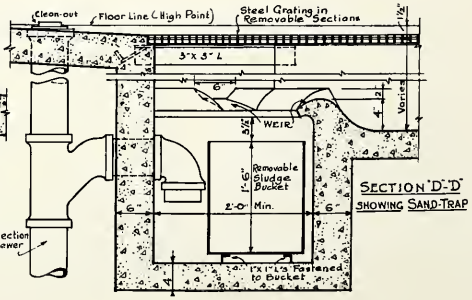
A wash rack should be enclosed so that spray will not fall on other cars. It should be well-lighted to assure quality work. Windows in partitions enclosing a wash rack provide better distribution of light over the wash rack and in adjoining stalls. Space can be saved by using roll-type screens rather than permanent partitions to separate adjoining wash racks.



SECTION "C"-"C"



HYDRAULIC LIFT DETAIL



SECTION "D"-"D" SHOWING SAND-TRAP

Wash rack detail

AISLES AND APRONS

Dealers endeavor to maintain a high ratio between stall space and aisle space. Space devoted to the movement of vehicles is sometimes classified as "non-productive" because it does not have a positive relation to the expansion of service volume. But failure to provide adequately for vehicle circulation can have a negative effect on service income. The value of traffic-ways should be measured in terms of the negative influences they eliminate. The removal of restrictions on operating income should justify the cost of space and construction.

Dealers in planning traffic-ways should:

—speed the movement of vehicles to reduce handling costs

—provide practical clearances for maneuvering to eliminate expense of repairing property damage

—avoid congestion or crowding to relieve customer concern for the safety of their persons or vehicles.

This section is concerned with the elements needed to provide horizontal vehicle circulation—

Aisles and driveways,
Aprons.

Aisles and Driveways

Horizontal vehicle circulation is provided by aisles (inside of buildings) and driveways (outside of buildings). To facilitate vehicle movement without wasting space, consideration should be given to traffic flow, vehicle dimensions and turning radii, and to the use and arrangement of adjoining stalls in designating:

Aisle patterns,
Aisle dimensions.

AISLE PATTERNS

Routing all vehicles in one direction speeds traffic and reduces congestion. Traffic flowing predominantly in one direction but with some two-way movement may become congested occasionally. Two-way traffic increases the possibility of congestion. Aisle and driveway patterns can be classified according to traffic flow as—

Continuous one-way aisles,
Semi-one-way aisles,
Two-way aisles.

Continuous One-way Aisles

R-shaped aisles provide a continuous flow of one-way traffic without cross-traffic. To achieve this aisle pattern, it is necessary to convert two or four center stall spaces at the front of the shop into a connecting aisle. Only shops containing a large number of stalls have sufficient traffic movement to justify converting this amount of stall space to aisle space. So this pattern is adaptable only to large service operations covering spaces 100′ to 140′ wide and 100 or more feet deep.

A figure 9 aisle provides a straight flow of traffic to reception stalls without cross-traffic. But P-shaped aisles necessitate an awkward right turn for entering traffic, or cause cross-traffic and possible congestion just inside the entrance door.

A clockwise flow permits left-hand turns into more stalls, but requires right-hand turns at corners. Counter-clockwise flow allows left-hand turns at corners.

CONTINUOUS ONE-WAY AISLES

R-shaped aisle

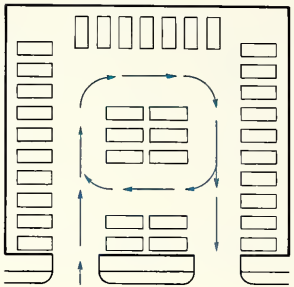
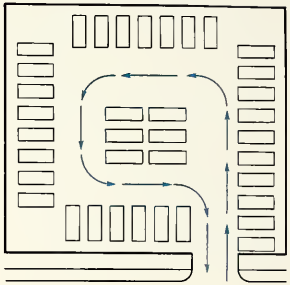
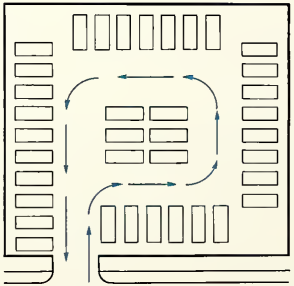
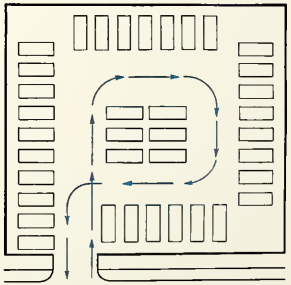


Figure 9 aisle



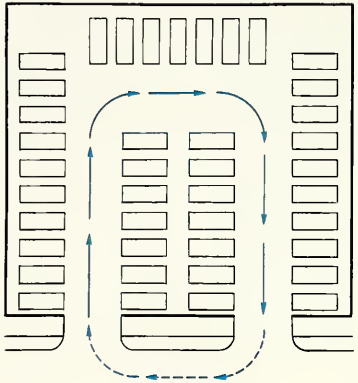


P-shaped aisle—awkward entrance

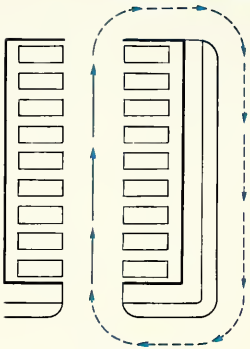


P-shaped aisle—cross-traffic

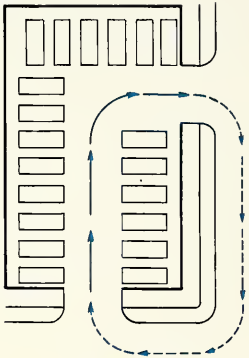
SEMI-ONE-WAY AISLES



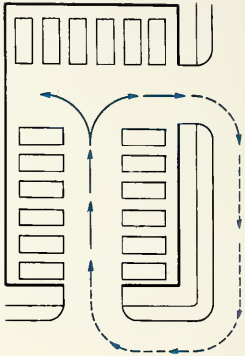
U-shaped aisles



I-shaped aisles



L-shaped aisles



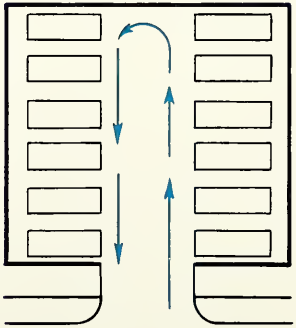
T-shaped aisles

Semi-one-way Aisles

A semi-one-way traffic flow can be established in service departments having separate entrance and exit doors. In general, traffic flows toward the exit but some two-way traffic occurs when operations cannot be performed in the same order in which stalls are arranged.

Semi-one-way traffic aisles can be converted into continuous one-way aisles by integrating the aisle pattern with public streets or outside driveways, as shown by lines in the diagram. Where service aisles are used in conjunction with public streets, it is desirable to establish a clockwise traffic flow so that vehicles can make right turns in merging with public traffic.

Using the street in conjunction with driveways and aisles provides smooth traffic movement with a minimum investment in land and buildings.



Dead-end aisle

Two-way Aisles

In some service departments it is not possible to provide aisles that are open at both ends. A dead-end aisle that is only a spur to the general aisle pattern need cause little inconvenience if it is used for access to stalls that are loaded and unloaded infrequently, such as, heavy repair stalls and body repair stalls.

AISLE DIMENSIONS

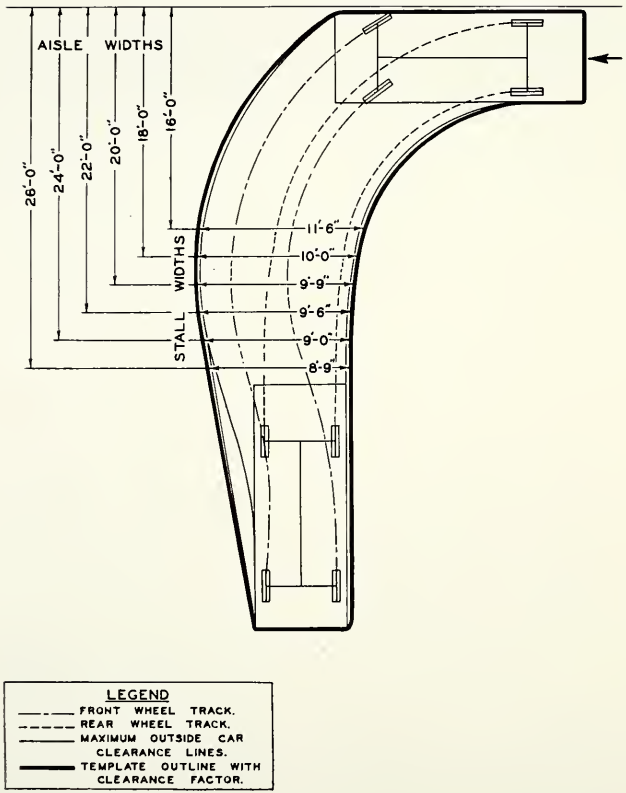
Aisle widths range from 14′ to 26′ or more. Aisle lengths range from the total width of all service stalls to only one-half of that length. Aisle heights range from 7½′ to 14′. The intended use of an aisle should determine its dimensions. In establishing dimensions for a specific aisle the following factors affecting width, length and height deserve consideration.

Aisle Widths

Factors important in determining aisle widths are vehicle dimensions and turning radii; stall dimensions, turnover and arrangement; and traffic flow.

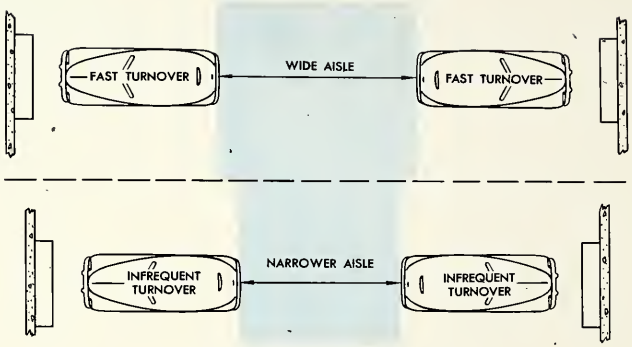
Vehicle Dimensions and Turning Radii

The dimensions and turning radii of the vehicles a dealer sells may be used as a basis in computing aisle widths. But dealers who sell cars that can be maneuvered in narrower than average aisles should consider specifying widths that are adequate for the majority of vehicles, as a means of protecting their investment in the property. Dealers who sell cars that are above average in dimensions and turning radii should provide aisles of sufficient width to assure operating efficiency.



Aisle widths for 90° turn

Fast turnover—wide aisles



Infrequent turnover—narrower aisles

Relation of Aisle Widths to Stall Turnover

Aisles leading to stalls that are loaded and unloaded frequently should be wide enough to keep maneuvering time low. Rapid circulation to such stalls is important to operating efficiency. Where the stall turnover is infrequent, aisles may be narrower. Maneuvering vehicles once or twice to get them into stalls having a low turnover involves so little total time that it becomes uneconomical to provide more space to reduce handling time.

Relation of Aisle Width to Stall Widths

An aisle leading to wide stalls can be narrower than one leading to narrow stalls. Stalls arranged at a right angle to an aisle can be entered without any maneuvering if the aisle is wide enough to permit the vehicles to complete their turns before they enter the stalls, or if the stalls are wide enough for vehicles to complete turns after they enter stalls. The template shows aisle widths required for passenger cars of average size to drive directly into stalls of various widths. It also shows how aisle widths may be adjusted to the dimensions of stalls arranged at a 90° angle.

In practice, aisles leading to passenger car stalls at a 90° angle usually range from 18′ to 25′ in width. Widths between 22′ and 24′ are popular for fast turnover.

Aisles leading to 90° truck stalls are usually 26′ wide. Narrower aisles may be considered in service areas devoted exclusively to light trucks and those of short lengths. Vehicles that cannot be maneuvered in a 26′ aisle usually are serviced in drive-through stalls or in stalls accessible from a street or driveway.

Relation of Stall Angle to Aisle Length

Stall Width	Aisle Length 90° Stalls	Aisle Length 60° Stalls	Aisle Length 45° Stalls
7′–0″	7′–0″	8′–1″	9′–10⅞″
7′–6″	7′–6″	8′–7⅞″	10′–7⅜″
*8′–0″	8′–0″	9′–2⅞″	11′–3⅞″
8′–6″	8′–6″	9′–9¾″	12′–0⅜″
9′–0″	9′–0″	10′–4¾″	12′–8¾″
9′–6″	9′–6″	10′–11⅜″	13′–5¼″
10′–0″	10′–0″	11′–6⅝″	14′–1⅞″
10′–6″	10′–6″	12′–1½″	14′–10¼″
11′–0″	11′–0″	12′–8⅝″	15′–6¾″
11′–6″	11′–6″	13′–3⅞″	16′–3¼″
12′–0″	12′–0″	13′–10¼″	16′–11⅜″
12′–6″	12′–6″	14′–5⅛″	17′–8¼″
13′–0″	13′–0″	15′–0⅛″	18′–4¾″
13′–6″	13′–6″	15′–7⅛″	19′–1⅛″
14′–0″	14′–0″	16′–2″	19′–9⅝″
14′–6″	14′–6″	16′–8⅞″	20′–6⅛″
15′–0″	15′–0″	17′–3⅞″	21′–2⅝″

*Dimensions used in diagrams.

Relation of Aisle Width to Stall Angle

Where stalls are arranged at a 45° angle, an aisle width of 14′ to 16′ provides easy maneuverability. When passenger car stalls are arranged at a 60° angle, an aisle width of 17′ to 19′ provides satisfactory maneuverability. Light trucks can be maneuvered in aisles suitable for passenger cars. Trucks of medium length require an aisle width of 20′ for 45° stalls and one 23′ wide for 60° stalls.

Relation of Aisle Width to Traffic Flow

Aisles that carry two-way traffic should be at least 20 feet wide to avert congestion.

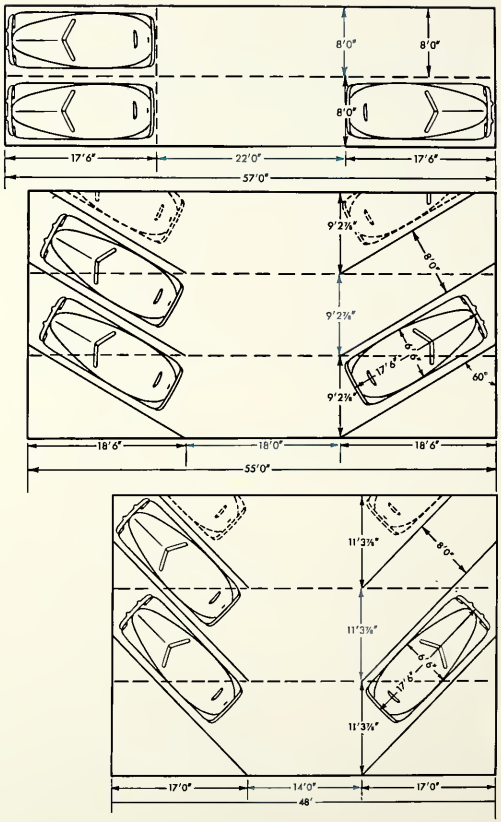
Aisle Lengths

The length of aisles and driveways can be kept to a minimum if stalls are arranged at a 90° angle to the aisle, and if each aisle serves two rows of stalls. Aisle length is increased when stalls are arranged at an angle of less than 90°.

Aisle Heights

In passenger car service, aisles should have a clear height of 10′6″ in areas visited by customers. Such a height is dictated by merchandising considerations rather than by car dimensions. This clear height in aisles on the ground floor of multi-story buildings provides accessibility for a high percentage of truck traffic. Aisle heights may be as low as 8′6″ in productive areas, and 7′6″ in parking areas.

For exclusive truck service a clear height of 13′ to 14′ is usual along aisles. Truck heights are limited generally to 12′6″, but cargo may project above truck heights. Providing clear height sufficient for the tallest vehicles assures flexibility in the use of stall space. Where the percentage of tall trucks is small and service volume consists of trucks 10′6″ or less in height, lower truss and building heights may be justified in certain portions of the shop. Provision should be made to service the tall trucks in special stalls accessible from the street or from a special aisle having sufficient clearance.



Aisle to 45° stalls

Aisle to 60° stalls

Aisle to 90° stalls

Effect of stall angle on aisle dimensions

Aisle Structures and Surfaces

The floor slab in the service department aisles should have sufficient thickness and strength to carry the heaviest vehicles that will use it. The dealer should approximate the loaded weight of vehicles that will use an aisle, and have his architect determine the required floor specifications.

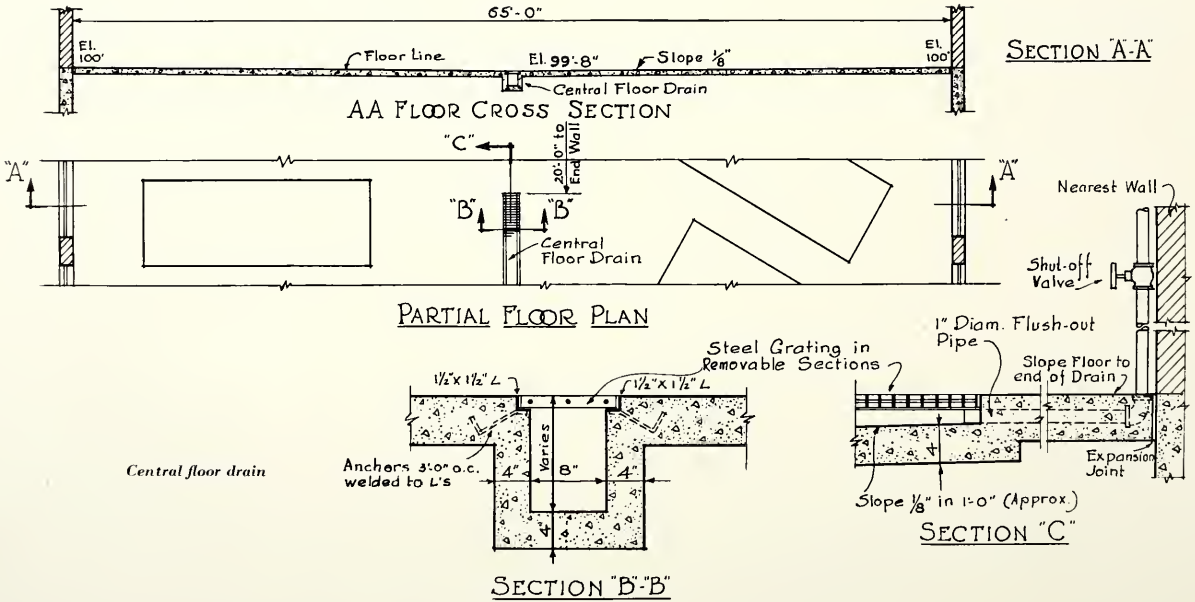
Dealers located in communities where salt solutions are used to rid public streets of snow and ice should specify air-entraining cement for service floors as concrete made of this cement is resistant to salt damage.

The cements and aggregates used in concrete can be had in different colors. If a dealer will specify light-colored Portland cement and light-colored sand for the finishing course of his service floor, the entire service department will be brighter because of the higher light-reflection factor. This increased brightness is an aid to both merchandising and productivity.

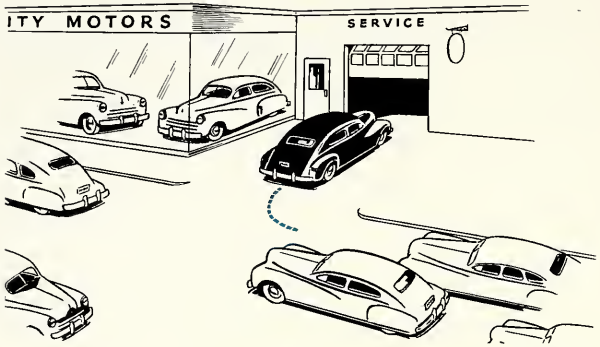
When cement and sand continually rub loose from a concrete floor surface, the condition is known as "dusting." Dusting results from improper ingredients, incorrect methods of laying or inadequate curing of the final course of concrete. Some sealing compounds have been developed to retard dusting, but they afford only temporary relief. In contracting for a new service floor dealers should specify a "non-dusting" floor. This reduces expense for sweeping and sealing floors, and for cleaning and polishing cars.

In the snow-belt some dealers imbed "Radiant Heat Grids" in their concrete driveways to melt away snow.

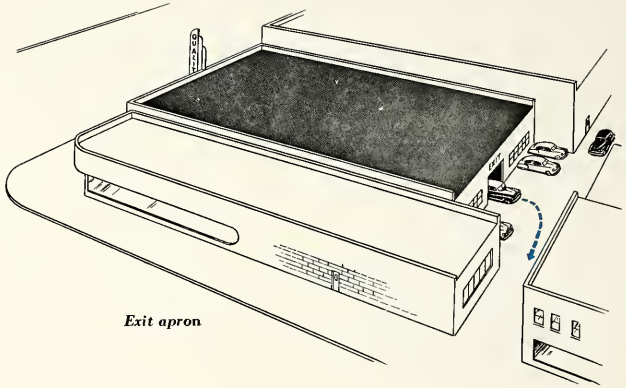
Floor drainage in a service department normally is provided by a drain recessed in the center of service aisles. The entire floor is sloped toward the central drain at the rate of ⅛ of an inch to the foot. The gutter, likewise, is sloped at the same rate from its source to the sewer connections. The drain is covered with removable sections of steel grating. Cleaning is facilitated by installing plumbing connections that make flushing possible.



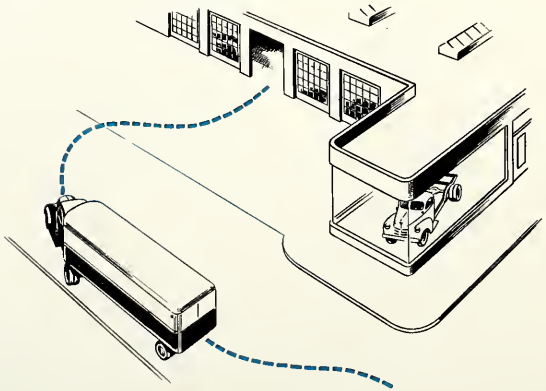
Central floor drain



Service entrance apron



Exit apron



Service apron for trucks

Service Aprons

Entrance Aprons

An apron leading from the public street to the service entrance doors enables customers to drive clear of highway traffic in safety. An apron also provides a convenient place for customers to wait while doors are being opened.

An apron wide enough for parking enables customers to stop and inquire about service without driving inside.

In many modern truck service station designs, the public street is used in conjunction with a broad concrete apron as an approach to service stalls. Service entrances along a side street permit trucks to be maneuvered with minimum interference with moving traffic. An apron extending in 28′ from the property line is considered minimum in truck service.

Exit Aprons

Where an exit door opens into an alley, the building should be set back far enough so drivers can see any approaching traffic. Where the exit is into a narrow alley, it may be necessary to recess the door or set the building back enough to provide maneuvering space for vehicles. This is especially true if truck traffic uses the exit. The length of apron needed for maneuvering can sometimes be reduced by providing a wider exit door.

Where a service exit leads into a busy street, it may be worthwhile to set the building back a little more than a car length from the curb line so that the exit doors will not have to be left open while customers wait their chance to merge with traffic.

RAMPS AND ELEVATORS

Vertical circulation for vehicles can be provided by either ramps or elevators. Ramps usually are preferred because they reduce handling costs, save employes' time, and contribute to good customer relations by speeding the reception and delivery of cars. Elevators occupy less space and are the only practical means of vertical circulation in buildings of limited floor area.

Service Ramps

Ramp Types

Ramps are classed as "single" if they provide only one lane for both up and down traffic, and as "double" if they provide separate lanes for two-way traffic. Single ramps usually are sufficient in dealer service departments because traffic is comparatively light and the cars are driven by employes. Also, the movement is predominantly in one direction at times when the traffic flow is heavy.

Ramp Grades and Lengths

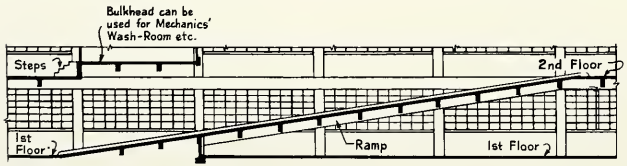
Gradual inclines provide desirable operating conditions while steep inclines conserve space. Grades ranging from 12% to 15% are preferred for service ramps. Grades within this range provide the desired balance between operating efficiency and space economy. Grades in excess of 18% are not recommended.

Ramp Headroom

The headroom along a ramp should be equal to the clear height along vehicle aisles. At the beginning and end of the incline, the headroom should be greater than the height of the highest vehicles to be accommodated. This is to allow for the elevation of the vehicle that occurs when the front and rear wheels are at different levels. This elevation can amount to as much as 8″ on passenger cars and 14″ on trucks.

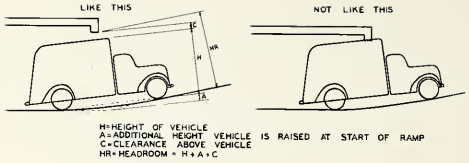
Ramp Approaches

The incline at the top of a ramp should be gradual so that vehicles will not drag on their undercarriages. The incline at the bottom of a ramp should be gradual so that bumpers will not strike the ramp. These angles deserve watching on short ramps such as those leading to a street.

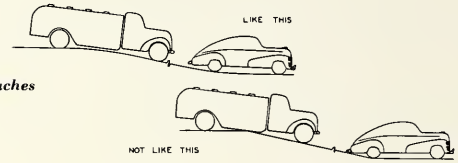


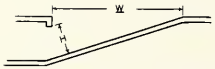
Typical longitudinal section

Headroom

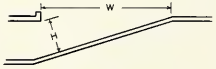


Gradual approaches





STANDARD BEAM CONSTRUCTION



INVERTED BEAM CONSTRUCTION

Well heights

RAMP DATA

	PER CENT GRADE								
	10%	12%	14%	15%	16%	17%	18%	19%	20%
	RISE IN INCHES PER FOOT OF RUN								
	1.20	1.44	1.68	1.80	1.92	2.04	2.16	2.28	2.40
	ANGLE OF INCLINATION (A)								
	5°43′	8°51′	7°58′	8°32′	9°5′	9°39′	10°12′	10°45′	11°19′
Floor Height (H)	LENGTH OF RAMP (L)								
8′-0″	80′-0″	66′-8″	57′-2″	53′-4″	50′-0″	47′-0″	44′-5″	42′-1″	40′-0″
9′-0″	90′-0″	75′-0″	64′-4″	60′-0″	56′-3″	52′-11″	50′-0″	47′-4″	45′-0″
10′-0″	100′-0″	83′-4″	71′-5″	66′-8″	62′-6″	58′-10″	55′-7″	52′-7″	50′-0″
11′-0″	110′-0″	91′-8″	78′-7″	73′-4″	68′-9″	64′-8″	61′-1″	57′-10	55′-0″
12′-0″	120′-0″	100′-0″	85′-9″	80′-0″	75′-0″	70′-7″	66′-8″	63′-2″	60′-0″
13′-0″	130′-0″	108′-4″	92′-10″	86′-8″	81′-3″	76′-6″	72′-2″	68′-5″	65′-0″
14′-0″	140′-0″	116′-8″	100′-0″	93′-4″	87′-6″	82′-5″	77′-9″	73′-9″	70′-0″
15′-0″	150′-0″	125′-0″	107′-2″	100′-0″	93′-9″	88′-3″	83′-4″	79′-11″	75′-0″
16′-0″	160′-0″	133′-4″	114′-4″	106′-8″	100′-0″	94′-2″	88′-10″	84′-2″	80′-0″
17′-0″	170′-0″	141′-8″	121′-5″	113′-4″	106′-3″	100′-0″	94′-5″	89′-5″	85′-0″
18′-0″	180′-0″	150′-0″	128′-7″	120′-0″	112′-6″	106′-11″	100′-0″	94′-8″	90′-0″
19′-0″	190′-0″	158′-4″	135′-9″	126′-8″	118′-9″	111′-10″	105′-7″	100′-0″	95′-0″
20′-0″	200′-0″	166′-8″	142′-10″	133′-4″	125′-0″	117′-8″	111′-1″	105′-3″	100′-0″

Ramp Wells

The tabulation shows approximate well lengths for different grades and clear heights. A floor slab thickness of 5″ has been assumed. This requires the use of the inverted beam construction. If standard beam construction is used over the edge of the ramp, a longer well (w) is needed to provide a specified headroom (h). A bulkhead for employe conveniences or storage can be erected over the ramp.

RAMP WELL DATA

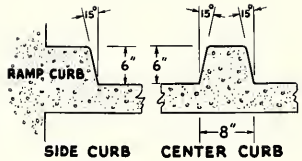
	PER CENT GRADE								
	10%	12%	14%	15%	16%	17%	18%	19%	20%
Headroom (H)	LENGTH OF RAMP WELL (W)								
7′-0″	75′-0″	62′-4″	53′-9″	50′-2″	47′-0″	44′-2″	41′-11″	39′-8″	37′-10″
8′-0″	85′-1″	70′-9″	61′-0″	56′-11″	53′-4″	50′-1″	47′-7″	45′-0″	43′-0″
9′-0″	95′-2″	79′-2″	68′-3″	63′-8″	59′-8″	56′-1″	53′-3″	50′-4″	48′-1″
10′-0″	105′-3″	87′-7″	75′-6″	70′-5″	66′-0″	62′-0″	58′-11″	55′-8″	53′-2″
11′-0″	115′-4″	96′-0″	82′-9″	77′-2″	72′-4″	68′-0″	64′-6″	61′-0″	58′-3″
12′-0″	125′-5″	104′-5″	90′-0″	83′-11″	78′-8″	73′-11″	69′-2″	66′-5″	63′-5″
13′-0″	135′-7″	112′-10″	97′-3″	90′-8″	85′-0″	79′-11″	75′-10″	71′-9″	68′-6″
14′-0″	145′-8″	121′-3″	104′-6″	97′-5″	91′-4″	85′-10″	81′-6″	77′-1″	73′-7″
15′-0″	155′-9″	129′-8″	111′-9″	104′-2″	97′-8″	91′-10″	87′-2″	82′-6″	78′-8″
16′-0″	165′-10″	138′-1″	119′-0″	110′-11″	104′-0″	97′-9″	92′-10″	87′-10″	83′-10″
17′-0″	175′-11″	146′-5″	126′-3″	117′-8″	110′-4″	103′-9″	98′-6″	93′-2″	88′-11″
18′-0″	186′-0″	154′-11″	133′-6″	124′-5″	116′-7″	109′-8″	104′-1″	98′-7″	94′-0″

Ramp Widths and Radii

The drawings illustrate desirable ramp widths and radii. Straight ramps should be a minimum of 10′ wide for passenger cars and 11′6″ for trucks. Curved ramp sections should be a minimum of 12′ wide for passenger cars. The width should be greater if a curve is of short radius. Double ramps should be twice the width of single ramps, plus an 8″ center division curb. The inside radius of a ramp for passenger cars should not be less than 16′ and preferably 17′4″ or more.

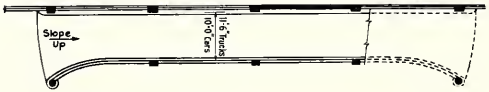
Because of variations in trucks, it is impractical to suggest widths and radii for the curved sections of ramps used by them. Usually, extra long trucks can be serviced on the ground floor. Curved ramp sections should be designed for the longest vehicles that will travel between floors.

Curb sections

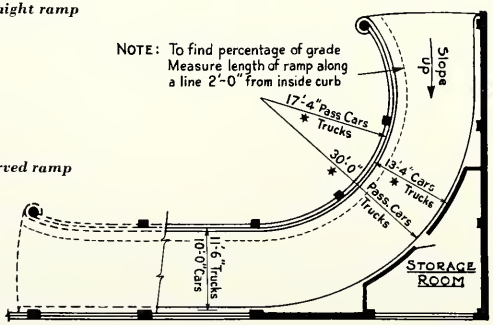


Ramp Curbs

A curb 8″ wide acts as a wheel guard to ward off damage to sheet metal. The curb height should not exceed 6″ to avoid damage to hub caps. Slanting the vertical face of a curb 15° will minimize scuffing of tire sidewalls.

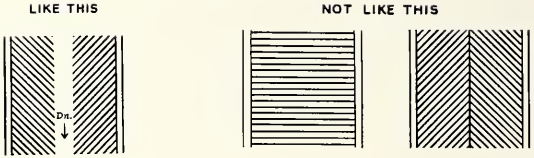


Typical straight ramp



Typical curved ramp

Anti-skid patterns



Ramp Surface

To provide good traction for vehicles and reduce cleaning expense, a ramp should be sloped slightly toward the center and its surface should be correctly scored. A herringbone pattern that slopes down and toward a smooth center strip is desirable because water dripping from vehicles will drain away from the edges where tires get their traction. And in sweeping or washing, the dirt will gravitate toward the smooth center strip where it can be easily pushed down the ramp and collected. A herringbone pattern that slopes outward spreads dirt and water. Grooves across a ramp hold moisture and dirt.

Where a wet climate or a steep ramp accentuates the skidding problem, abrasives can be incorporated in the top course of concrete to improve traction.

In cold climates ramps may become coated with ice if they are outside the building or near a door. Icing can be overcome by installing "Radiant Heat Grids" in the concrete. It usually is sufficient to heat the lower section of inside ramps.

Ramp Location

Ramps should connect with aisles so as to provide a continuous and uncongested traffic flow. It is particularly important that traffic should flow smoothly between the ramp, reception stalls, entrances and exits. Ramps usually are located inside of buildings to avoid weather conditions that make them slippery.

Service Elevators

The proper width for a service elevator depends on the width of the vehicles and the ease of the approach. If the approach is unobstructed, a platform width of 10′ for passenger cars and 11′ for trucks is ample. The elevator should be sufficiently wide so that drivers can open doors and get in and out of vehicles readily. If the approach is cramped, a wider elevator may reduce the handling time required to move cars on and off the elevator.

An elevator length of 24′ will accommodate all passenger cars and a high percentage of trucks. A longer platform will be needed for long trucks. A platform 18′ in length will accommodate a high percentage of passenger cars, but lengths below 20′ may seriously reduce the adaptability of the building to other occupancy.

Manufacturers of elevators should be consulted regarding operational and safety features of their equipment.

SERVICE ROOMS AND OFFICES

Rooms are provided in a service department for specialized types of productive work and for offices. Rooms are used for productive work on detached parts and assemblies—particularly for work that requires the use of specialized equipment that is too costly or too bulky to be placed in individual stalls.

Toolroom

A toolroom or machine shop is provided to contain such equipment as an arbor press, a motor stand and valve refacing equipment. These machines are used for comparatively short intervals and are too expensive or bulky to be placed in each "heavy repair" stall.

The amount of space that should be set aside for a toolroom depends upon the amount of equipment and working space that a dealer plans to provide. The amount of equipment is related in turn to the specialization of stalls. For example, if a dealer has sufficient brake work to justify one or more specialized stalls, he may place drum lathes, riveters and other brake machines in or near the brake stalls. But if brake volume does not justify specialized stalls, the brake equipment may be set up in a toolroom where it is accessible to all mechanics (or where a special operator performs the machine work for all mechanics).

Toolrooms are located conveniently when they are near the "heavy repair" stalls. A chain hoist operating on an overhead rail facilitates movement of heavy assemblies between stalls and the toolroom. Toolrooms usually are enclosed by a hand rail or open grating.

Unit Repair Shop

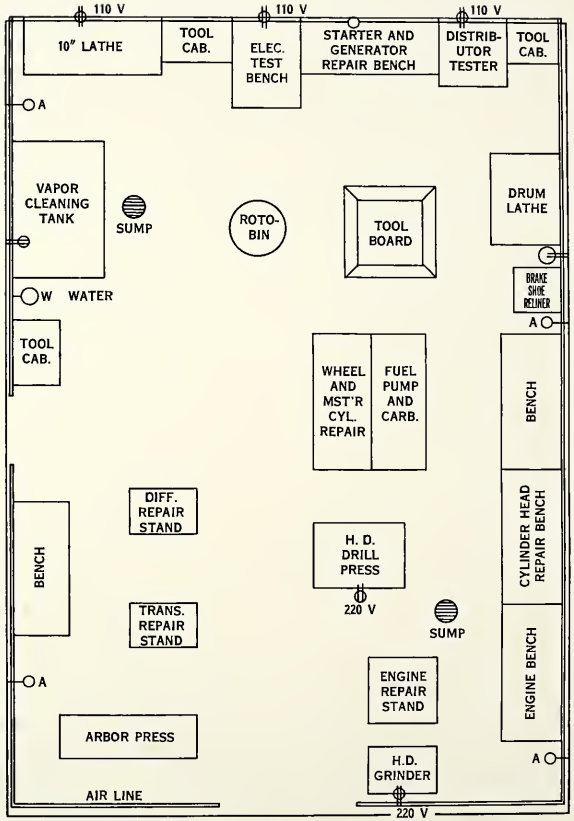
In truck service, some forms of specialization can be practiced more economically by circulating detached parts and assemblies through a unit repair shop, than by circulating trucks through specialized stalls.

A unit repair shop in truck service is similar in purpose to a toolroom in passenger car service, except that more specialized equipment and manpower is centralized. Where a unit repair shop is provided, the work in stalls is limited largely to removal and installation of assemblies.

A chain hoist operating on an overhead rail should be provided to convey heavy assemblies between service stalls and the unit repair shop. It is an aid to operating efficiency to locate the unit repair shop next to the parts department.

Battery and Electrical Room

Dealerships with a large volume of quick service work may provide a special room where equipment is set up to service small assemblies, such as, generators, starters, distributors, batteries, carburetors and fuel pumps. Such a room contains equipment like armature lathes, cleaning tanks, and benches designed for working on small assemblies. It usually is located near the quick service stalls.



Unit repair shop—truck service

Radio Room or Stall

Dealerships that employ radio repairmen may provide either a room or stall where test equipment can be set up and with bench space adaptable to working on radio chassis. A location near service reception puts the repairman where he can remove radios quickly and allow customers to proceed on their way. A location near service reception also helps to display radio service and sell it.

Paint Storage Room

Building codes may require that paint materials be stored in a fireproof room. Where such a storage room is required, the provisions of the code should be followed with respect to location and construction. The room should be as convenient to the paint spray room as is consistent with code provisions.

Service Manager's Office

It is good practice to provide the service manager with a private office where he can meet with employes and customers. An office that provides desk space for the service manager and seating for two visitors usually is sufficient.

In large dealerships, the duties of the service manager are primarily administrative and his office usually is placed near the dealer's office and away from the service reception area. In small dealerships, where there is routine contact with customers, the office should be located near the reception area.

Service Control Tower

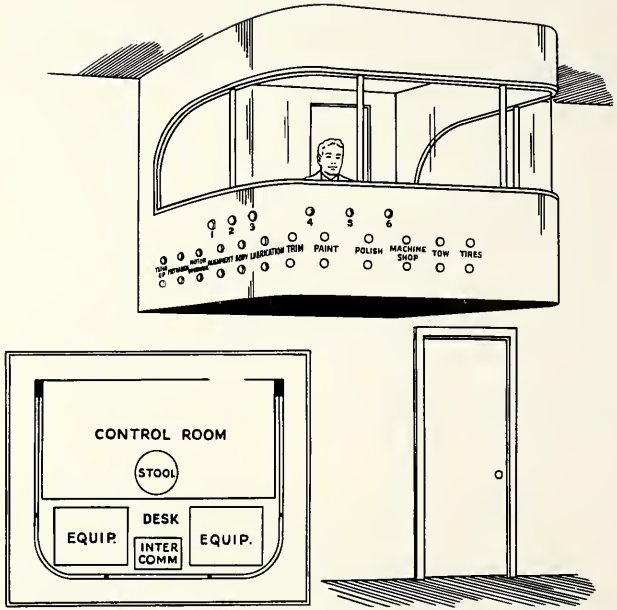
The operator of the service control tower is usually called a "dispatcher." He is in charge of scheduling service work through the shop. He also advises when the capacity for certain types of work has been fully scheduled for the day.

The equipment in the service control tower consists of various office devices for maintaining records of the flow of work. The control tower usually is connected with an intercommunication system to all parts of the shop. The space provided for this activity may vary from an office 10′ x 10′ to a larger space.

The service control tower usually is elevated sufficiently to give the dispatcher a view of the reception center and as much of the shop as is possible. This arrangement gives him a visual control of work in process, in addition to the record control. The tower is surrounded by windows set 30″ above floor level.

Service Cashier

The service cashier's office should be located along the route that customers follow in coming from the street to the point where they take delivery of their cars. The desk should be near a waiting room or seating facilities. The service cashier is sometimes located in the parts store to draw traffic.



Service control tower plan and elevation

General Service Office

In large service operations a general service office may be provided for employes who bill repair orders and maintain the customer follow-up system.

The personnel needed for this work may vary from one girl working with the service manager, to a service office manager assisted by several clerks. The amount of space needed for such an office is established by the number of employes. It is usual to provide 70 square feet each for one or two employes, and 60 square feet more for each additional employe. A location near the reception area and cashier is favored, because it keeps records where they are needed most often.

SERVICE DEPARTMENT LAYOUT

Steps in the layout of a service department are:

- Secure drawings of land and buildings
- Allocate activities to the building or lot
- Locate circulation elements
- Locate service stalls
- Locate rooms and offices

SECURE DRAWINGS OF LAND AND BUILDINGS

A drawing of land and any existing buildings should be obtained or made. A scale of ⅛ of an inch to one foot is convenient.

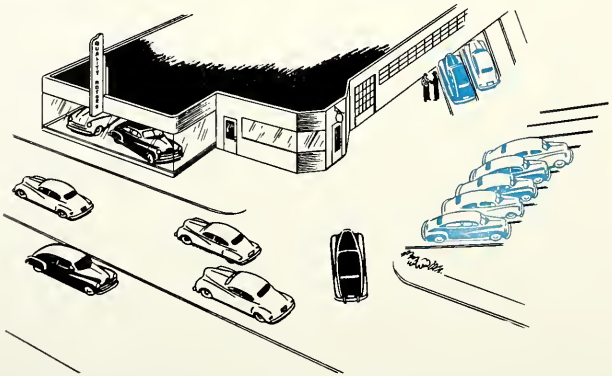
The plot drawing should indicate the dimensions and elevations of the dealer's land and of adjoining streets, parkways, sidewalks and alleys (lanes). If there are buildings, the drawings should also indicate the position of all structural elements and stationary equipment.

ALLOCATE ACTIVITIES TO THE BUILDING OR LOT

Before beginning the layout of a service department, a decision should be reached as to which stalls should be inside a building, under a canopy or on an open lot.

Reception and parking stalls often are placed on open lots. Outside reception is helpful in dealerships that experience a large influx of customers just prior to the opening of other businesses. Outside parking is economical and it is suitable for most cars before and after they are serviced, but some inside stalls should be provided for cars that are polished or painted.

Productive stalls usually are located under a roof. In tropical climates some work is done in the open, but in temperate climates this practice is restricted to special situations.



Service reception court

LOCATE CIRCULATION ELEMENTS

In developing a service plot plan or floor plan, it is desirable to begin by locating aisles, driveways, and other circulation elements because internal traffic should be correlated with street traffic movements. Also, the pattern established for vehicle circulation ultimately affects the arrangement of stalls, rooms and offices. In laying out circulation elements:

- Determine span of aisle plus stalls
- Plan the traffic flow
- Adjust circulation elements to lot dimensions

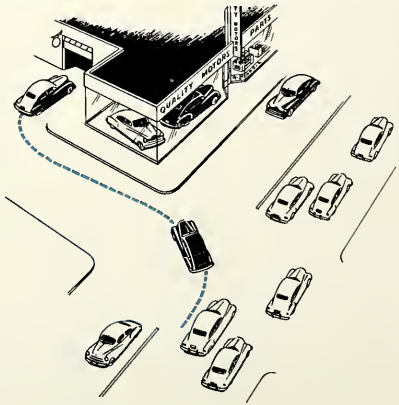
Determine Span of Aisle Plus Stalls

The most economical use of space is achieved by arranging a row of stalls on each side of an aisle or driveway with the stalls at right angles to the aisle. However, less than right angled stall arrangements afford a practical solution in situations where the lot or floor is not wide enough for right angled parking. Angled arrangements often are preferred in service reception and on used car lots (See "Relation of Aisle Width to Stall Angle").

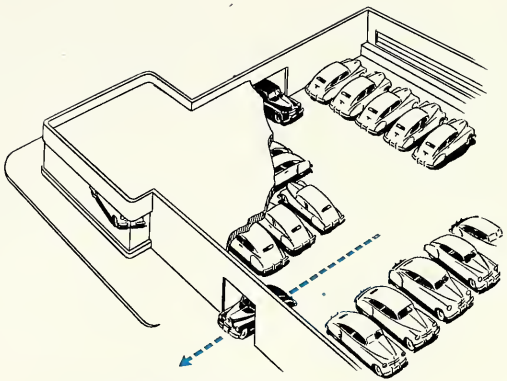
Plan the Traffic Flow

In routing service traffic, attention should be focused on the traffic stream that is richest in service customers. This usually is the morning traffic. If service traffic passes on the near side of the street, the service entrance may be located on either the main street or side street. A main street entrance provides high visibility and with a suitable apron it is very convenient. If traffic is heavy and an apron cannot be provided, a side street entrance may be preferred.

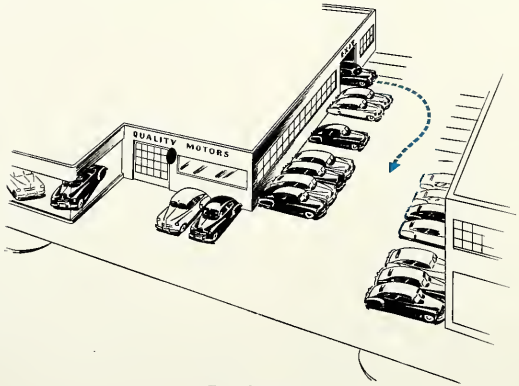
If morning traffic follows the far-side of the street, a side street entrance may be more convenient as it enables traffic to turn left at a street intersection.



Morning traffic on far side of street



A convenient exit leaves a good impression



Exit through a lot

At corner locations it usually is convenient to route traffic "in" from one street and "out" on another. An exit leading directly to a public street is most desirable.

At an inside lot location, traffic may be routed through a used car or service parking lot to the public street.

Adjust Circulation Elements to Lot Dimensions

Peak space and operating efficiency can be achieved in passenger car service if productive areas measure from 65′ to 75′ in cross section, and if parking areas measure 50′ to 60′ in cross section (stall length plus aisle width).

If lot or floor areas are narrow, one or both rows of stalls can be arranged at less than right angles to the aisle. Another solution is to group a row of shorter parking stalls with a row of longer productive stalls.

LOCATE SERVICE STALLS

Stall Arrangement

Reception stalls are located conveniently to the service entrance and usually are arranged at a diagonal angle to the aisle to be more accessible to inexperienced drivers. Stalls on the left side of the aisle can be entered more easily from the right-hand lane.

Lubrication and quick service stalls are located in or near the reception area. Most of this work is of a type that is required at frequent intervals and it can be merchandised by displaying facilities that remind customers of their needs. Placement near reception stalls also reduces internal traffic.

Heavy repair stalls should be located conveniently in relation to the toolroom and parts department. Infrequent turnover in these stalls makes them adaptable to locations of restricted accessibility.

Stalls devoted to body work, washing, painting and used car reconditioning usually are located away from customer areas because of noise and the difficulty in maintaining high appearance standards. Paint booths sometimes are located at the end of an aisle for easy accessibility or in a corner to get the advantage of natural light. Wash racks should be convenient to water and sewer connections.

Extra length stalls, needed for trucks and for front-end and frame machines, can be located diagonally in corners or in a row of long stalls across one end of the building.

Parking stalls should be located where they are convenient to reception, to productive stalls and to the public street.

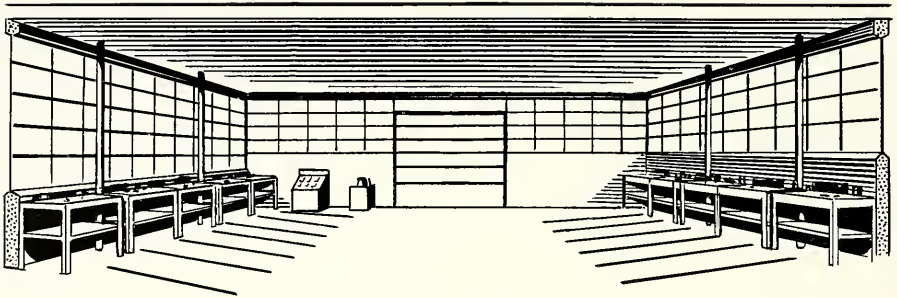
Column Arrangement

In single-story construction it is practical to avoid the use of columns in stalls and aisles. A modern trend in two-story construction is to provide one row of stalls free from columns.

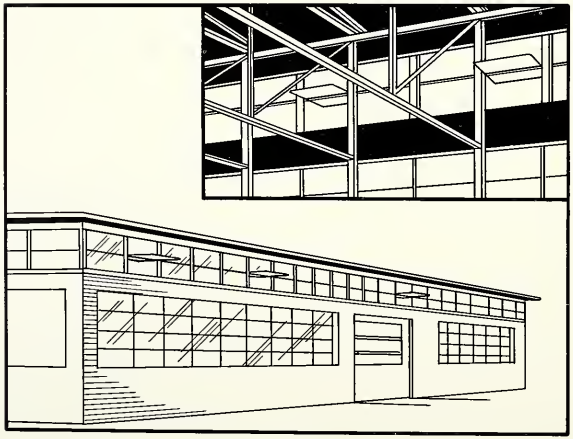
Columns interfere less with turning if they are set between stalls, 1′ to 3′ in from the line that divides aisle space from stall space. The proper distance between column centers should be determined in relation to stall widths and to construction costs.

LOCATE ROOMS AND OFFICES

Rooms and offices usually are located in spaces that are not readily accessible to vehicle traffic. Hence, their locations are selected after aisle and stall arrangements are fixed.



Continuous windows extending close to the ceiling



Clerestory windows

SERVICE ELEVATION FEATURES

WINDOWS IN THE SERVICE DEPARTMENT

The wide floor expanse in a service department gives rise to special problems in daylighting—particularly for the central area.

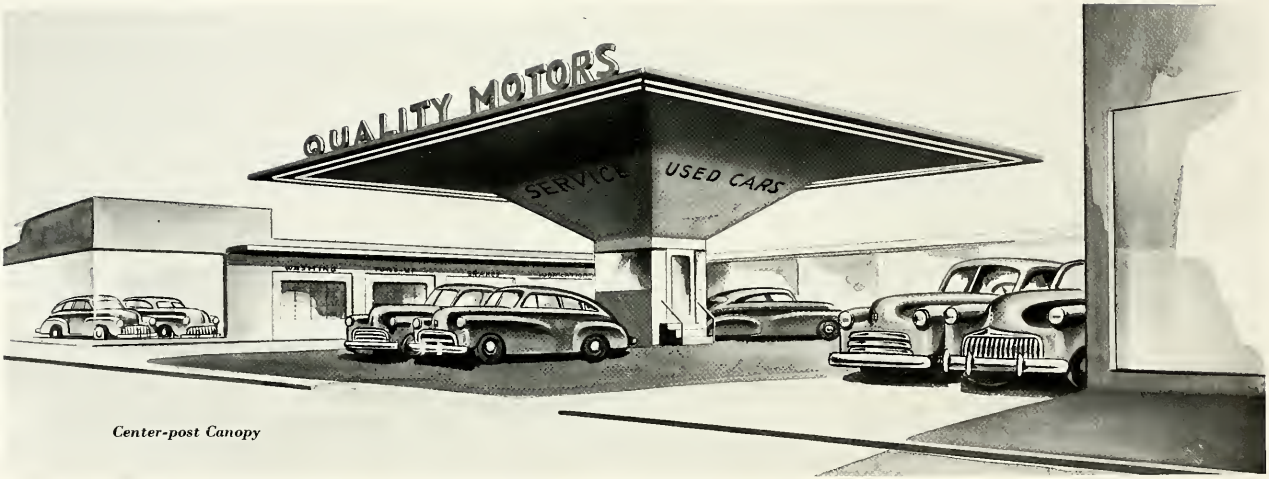
Better light distribution is obtainable by extending windows up close to the truss line so light can penetrate farther into the interior. Clerestory windows (mounted between the upper and lower truss lines) provide good lighting. Skylights and monitor roofs also are useful in illuminating the service department interior.

A high level of illumination is needed for many service operations. More light is admitted by continuous windows (without wall space between window sash), and by modern casements that have larger glass panes and less framing.

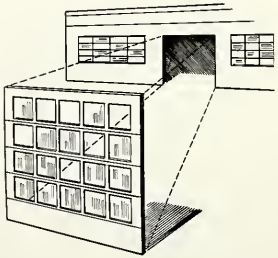
Admitting large amounts of daylight into the service department may give rise to heat problems. North light can be admitted without creating a heat problem. South, east and west windows admit heat along with light. (North and south considerations reversed in southern hemisphere.)

The heat problem that arises when windows are exposed to direct sunlight can be met in different ways. The heat rays can be stopped by awnings or other shading devices that hold back both light and heat. Or the heat may be reduced with heat absorbing window glass (bluish-green) that stops a high percentage of heat rays with only a small sacrifice of light rays. Heat that reaches the interior may be dispelled by natural or mechanical ventilation.

Double glazing and glass block admit light, and they are effective against heat loss in cold weather, but they are little more efficient than single window panes for preventing heat gains from direct sunlight.



Center-post Canopy



Glazed entrance door

VEHICLE DOORS

For merchandising reasons, entrance doors 16′ to 18′ wide are provided for one-way traffic. It is good practice to provide entrance doors 20′ wide for two-way traffic. A 14′ width is minimum for an entrance door opening into an aisle. Doors opening into individual stalls should provide 3 feet of clearance on both sides of vehicles.

Windows in service doors help to brighten the service reception area and enable employes to see arriving vehicles. Some glass breakage can be anticipated but these losses should be weighed against the merchandising gains.

Exit doors should be 12′ wide for passenger cars and 14′ wide for trucks. Exit doors should be wider if they lead into cramped driveways.

Vehicle door heights should be related to the clear height along aisles. Additional clearance may be needed for the door-opening mechanism or for overhead doors when in a raised position.

Door channels and openings should be protected from damage by suitable guards.

PEDESTRIAN DOORS

Service customers who have left their cars for service should be routed past the new car, parts or accessories displays where that is convenient. Otherwise, a pedestrian door should be located so customers may leave the building easily.

CANOPIES

Canopies serve a variety of purposes in service. In parking lots they protect the finish of cars that have been recently washed or polished. They provide weather protection on reception courts which promotes more thorough inspections. In tropical climates they furnish shade for productive stalls. In temperate climates they provide shelter for servicing trucks and tractor-trailers that are too large to be brought inside.

The center post canopy which is illustrated was suggested by one that is now in use in South America. It is used to provide shade for service reception and used car displays. It also provides an outstanding background for signs and lighting.

PARTS AND ACCESSORIES

A parts department stocks parts and accessories for use in the dealer's service department. It also sells parts and accessories at both retail and wholesale.

Planning a modern parts department involves consideration of the following elements:

- Parts Salesroom
- Parts Stockroom
- Oil Storage Room
- Parts Manager's Office
- Parts Truck Parking Stalls

Parts Salesroom

Car owners and repairmen have always been able to buy replacement parts and accessories from authorized dealers, but in recent years the dealers have made an active effort to sell parts at wholesale and retail. Salesrooms and displays are now used in the selling effort.

In planning a parts salesroom dealers should:

- Analyze the types of traffic
- Relate product displays to types of traffic
- Plan displays for street traffic
- Plan displays for floor traffic
- Determine space needed for salesroom fixtures
- Select elevation features to display parts

Analyze the types of traffic

Sales displays are most effective if chosen to appeal to the interests of those who will see them. Therefore, the first step in developing a good display is to study traffic and understand its interests.

The kind of traffic that a location produces affects the types of merchandise that should be displayed and the amount of space that should be devoted to a parts salesroom. Parts store traffic might be classified according to its interests as:

- Retail buyers
- Wholesale buyers
- Pick-up men

Retail Buyers

There are two types of retail traffic—accessory buyers and parts buyers.

Owners who buy their service rarely have occasion to go to a parts store. But when they go to dealerships for cars or service their attention may be drawn to accessories displays which can directly occasion additional sales. Displays of genuine replacement parts may strengthen the preference for dealer service and thus indirectly increase parts sales.

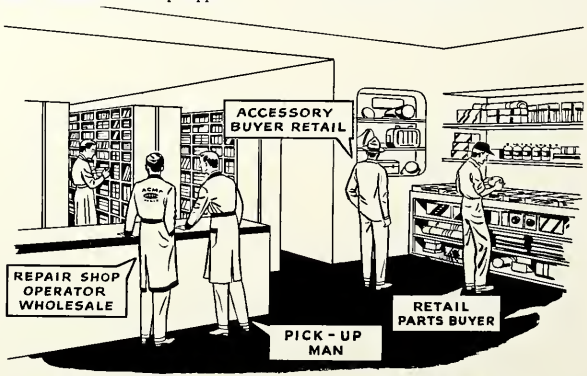
Customers who service their own cars usually come to the dealer's parts store in person. They recognize needed principal parts but often can be helped to select their complete requirements by displays of related parts. Displays also may be used to promote the sale of accessories, maintenance materials and shop supplies.

Wholesale Buyers

Independent repairmen and fleet users are favorably impressed with displays which show adequate parts stocks to be available. Displays may induce them to buy and stock functional parts that are used frequently. Repairmen also may be interested in displays of merchandise they can offer for resale. Counter displays can be arranged to promote the sale of additional merchandise to wholesale customers who come to the dealer's salesroom.

"Pick-up Men"

Some wholesale customers send a "pick-up man" to the parts store or request delivery by the dealer. These men do not make the buying decisions so displays are ineffective with this class of traffic.



Different Classes of Customers Are Interested in Different Merchandise

Relate product displays to types of traffic

Displays are more effective for selling some types of parts and accessories than others. Hence, a dealer should display the types of merchandise that will produce the most sales. The merchandise in a parts store might be classified as follows for purposes of display value:

Accessories

These are of two types: car accessories such as spotlights and mirrors, and service accessories such as cleaning materials and supplies. This type of merchandise is of interest to all car owners. *Impulse sales* can be promoted with displays that generate an immediate urge to get an additional value.

Spare Parts

Retail buyers may anticipate a need for such items as tires, tubes, fan belts and fuses. Wholesale customers may be induced to buy and stock items which they use frequently. *Anticipation sales* can be promoted by displays that cause customers to purchase for future application.

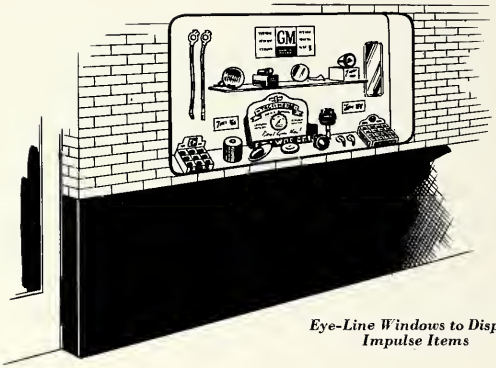
Related Parts

Related items consist of auxiliary parts, mating parts (gaskets, grommets, etc.), attaching parts (bolts, screws, etc.), and shop supplies. *Reminder sales* can be promoted with educational displays that acquaint customers with their complete requirements.

Principal Parts

These consist of the main parts for which a need is usually recognized before the customer comes to the parts store. *Demand sales* can be increased by displays which let customers know where these parts are available if a need arises. Displays of typical parts indicate the nature and range of the business and are valuable as institutional advertising.

Types of Merchandise to be Displayed



Eye-Line Windows to Display Impulse Items

Plan displays to appeal to street traffic

Dealers can utilize their show windows and store exteriors to create different impressions on street traffic. The impression to be created depends upon the type of traffic at a location.

Dealers use four types of window displays that produce different impressions. The basic types might be listed as:

- Display of typical parts and accessories
- Display of stockroom
- Display of signs
- Display of parts store interior

DISPLAY OF TYPICAL PARTS AND ACCESSORIES

Displays of parts and accessories are effective as institutional or point-of-purchase advertising. Typical displays can suggest the purchase of some impulse items but have only limited worth for indicating the range of the inventory.

Dealers desiring this type of display may specify eye-level windows that position small products where they are clearly visible to street traffic. A window opening 3 feet to 4½ feet high admits sufficient natural light to illuminate shallow displays. The bulkhead below the window may be 3 to 3½ feet tall.

An enclosed window should be equipped with a good background for display and suitable mounting fixtures. The use of transparent glass or plastic shelves provides better light distribution and eliminates harsh shadows that obscure merchandise. The enclosure should extend high enough above the window to conceal artificial lighting equipment.

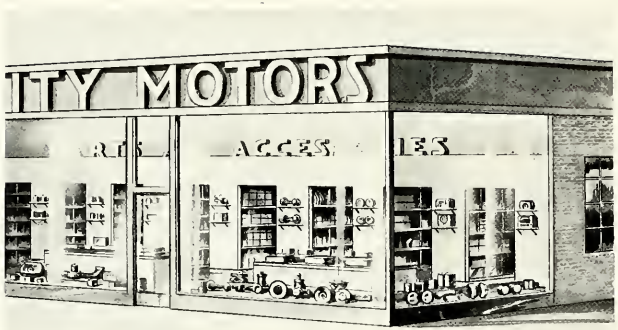
An eye-level window can be placed in any outside wall that is exposed to sufficient traffic to justify the expense. It need not adjoin the parts salesroom or stockroom.

DISPLAY OF STOCKROOM

A parts stockroom may be displayed to impress customers with the availability of parts. Availability is suggested by the amount of the inventory. To convert an ordinary stockroom into a good window display requires operational planning.

Stock seen from the street should be arranged in orderly fashion. Parts not finished or packaged for appearance should be stored where they are not visible to the street. Standard stock bins and racks should be made presentable by the application of appearance panels or paint. Aisle widths should be sufficient to remove any feeling of confusion.

To impress street traffic with the size of the stockroom it is better to display the ceiling than the floor. The ceiling gives a clear impression of room size if painted in a light color and well-illuminated. Floors are darker and obstructed by fixtures, and they cannot be kept clear of stock and packing materials at all times. In displaying a stockroom to the street it is good practice to screen off the lower section of the bins and floors. The screen may be formed by display counters or by an exterior wall.



Store Interiors Tell a More Complete Story

If display counters are to occupy the foreground, the windows may start from a low bulkhead and extend upward to within one foot of the ceiling. If bins occupy the foreground, the exterior wall can be built to a height of 36 to 42 inches and the windows can extend up to within one foot of the ceiling.

DISPLAY OF SIGNS

Simple show window writing can attract attention, advertise price, and arouse interest in specific items of merchandise. But confused patterns cannot be comprehended quickly by motoring traffic.

If signs are to be used extensively for advertising the parts business, some form of bulletin-board may be more effective than a show window for carrying the message. Sign boards often can be mounted where they do not reduce window display.

DISPLAY OF PARTS STORE INTERIOR

A parts store interior attracts attention, familiarizes customers with its arrangement, and arouses interest in products.

An effective display in a store interior consists of foreground displays, counter displays. Foreground displays are placed near the show window for exterior and interior viewing. They are 30″ or less in height so as not to obstruct the view of other displays. Table or counter displays are arranged in the central floor area. Background displays are formed by cabinets and parts bins suitably finished for appearance. Background signs may be displayed above bins and cabinets.

A parts store interior can be displayed to better advantage behind large windows that permit natural light to penetrate deeply into the salesroom. Light-colored fixtures and backgrounds also help to increase brightness and visibility.

Stockroom Displays Suggest the Size of the Inventory

Avoid Cluttered Sign Writing

Plan displays for floor traffic

Once customers have entered the parts salesroom, a dealer has the opportunity to interest them in impulse, anticipation and reminder items. Impulse items can be displayed dramatically from sales standards or special backgrounds. Items that customers can buy in anticipation of future needs can be effectively displayed on open counters. Reminder items can be displayed on wall or counter boards and with illustrations. Small parts can be arranged in mass displays to attract more attention.

Displays to Interest Floor Traffic

DETERMINE THE SPACE NEEDED FOR FIXTURES

The amount of space required for display, storage and service fixtures should be determined as a basis for establishing the area of the parts salesroom.

Storage Fixtures

Many salesroom fixtures contain space that can be utilized for storing merchandise. Likewise, bin shelves and cabinets that are used for storage have surfaces that are valuable for display purposes.

Display Fixtures

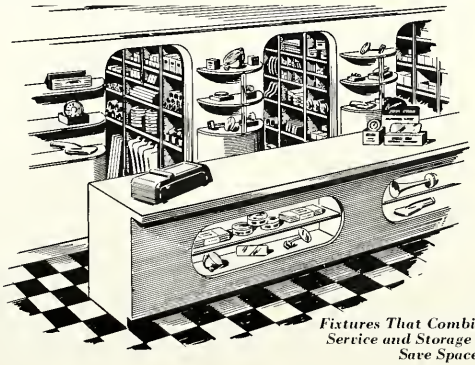
More merchandise can be displayed in less space with fixtures that utilize horizontal and vertical surfaces.

Vertical surfaces can be used to display typical parts and accessories. Displays can be arranged on the ends of parts stock bins, on the doors to cabinets, below tables and on wall boards. Vertical displays occupy little floor space.

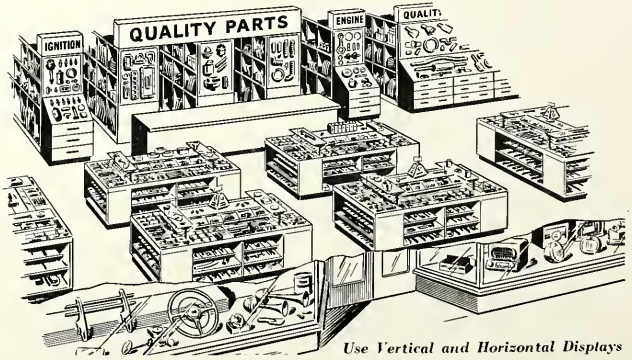
Open counter and table displays permit customers to see and examine merchandise. The opportunity for examination helps some customers to select parts they want without having to describe them. Reducing the difficulties of description is helpful to the customer and saves the time of the employes.

Open display units may be of any dimensions. Standard units 30″ by 60″ have proved convenient. The units can be used singly or grouped in many different ways. A 42-inch aisle between counters is desirable to encourage shopping and to avoid the disarrangement of merchandise.

Merchandise that is small in size may be stored in shallow, vertical cabinets. The doors of such cabinets can be used to mount small parts or charts showing their application.



Fixtures That Combine Display, Service and Storage Functions Save Space



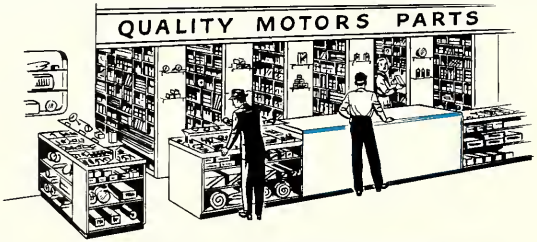
Use Vertical and Horizontal Displays

Service Fixtures

Dealers should provide counter space in relation to the volume of counter trade. Customer counters should be a minimum of 6 feet in length which is sufficient for serving two customers at the same time. If more than two customers will be waited on at the same time, 3 feet of additional counter length should be provided for each additional customer.

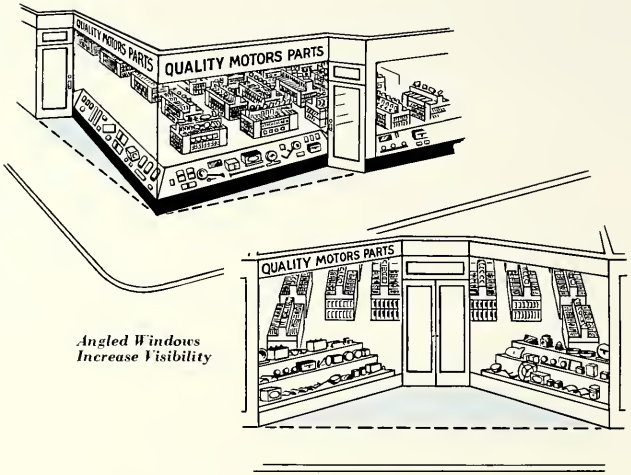
It is better to be unable to accommodate all customers at the counter during peak periods than to provide long service counters that create the impression that the store attracts only a fraction of the patronage for which it was designed. Displays arranged near the service counter help customers pass the time until they can be waited on. They also stimulate the sale of products.

In some dealerships a cashier's counter or booth is located in the parts sales room. This routes service customers and others through the parts department where they will see merchandise displays. The counter should provide a ledge on which customers can rest their purses, papers or packages while they pay their bills. The ledge is placed at elbow-height, or 42" above the floor. Toe space is provided at the base of the counter.



Relate Counter Space to the Number of Customers

Avoid Excess Counter Space



Angled Windows Increase Visibility

Select elevation features to display parts

Interesting exterior and interior features help attract attention to the parts sales activity and also help merchandise the products.

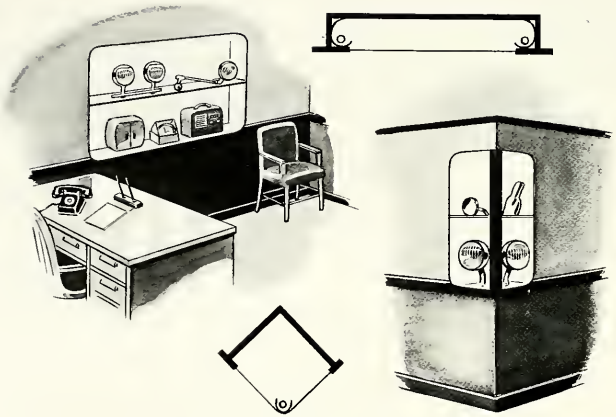
EXTERIOR FEATURES

Angled Windows

At locations where there is an opportunity to attract a substantial volume of retail traffic, the parts store should have a "front" adapted to retail selling. In many modern retail stores the fronts are angled to provide visibility of salesroom interiors, particularly to motoring traffic.

At locations within the block the windows usually are angled on a straight line from the entrance to the sidewalks. The entrance is sometimes placed off center so that near side traffic will see a larger window, or a window placed at a more favorable angle.

At corner locations the angle may be formed by locating the doors away from the corner and setting them at a right angle to the sidewalk, and then extending the windows from the entrance to the corner. This provides high visibility to four traffic streams.



Niches for Parts and Accessories Display

INTERIOR FEATURES

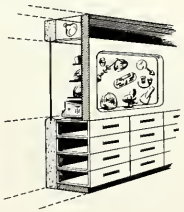
Interior Wall and Pillar Niches

There are many vertical surfaces in a dealer building that can be used for displays that stimulate parts and accessories' sales. Eye-level niches in walls and pillars provide effective and economical display space.

Displays of this type cost very little if they are incorporated at the planning stage and included as a part of the original construction. Niches of interesting modern design can be fashioned of masonite or similar materials and the edges finished with standard chrome trimmings. The niches should be larger than the window opening so that artificial light sources can be shielded. Glass shelves provide good light distribution throughout the displays.

Storage Cabinets

Floor area can be conserved by utilizing the space below show windows for storage cabinets.



Storage Below Display Windows

Parts Stockroom

A parts stockroom may have four component elements—bin storage area, bulky storage area, receiving and shipping area, and service counter area.

Bin Storage Area

This space is used for the storage of comparatively small parts and those on which there is a rapid turnover. These parts are stored in standard bins 1′ deep, 3′ wide and 7′ or 8′ high. Some racks and shelves of varying dimensions also may be provided for fast-moving bulky parts. The minimum aisle widths between stockroom bins are specified at 27″ to 33″. Where possible, the aisles are arranged at right angles to the parts service counters.

Bulky Storage Area

Bulky storage is provided for large mechanical assemblies and sheet metal parts. Some parts are stored in standard bins 3′ wide, 2′ deep and 7′ high, while others are racked in fixtures of various proportions that are fabricated on the job.

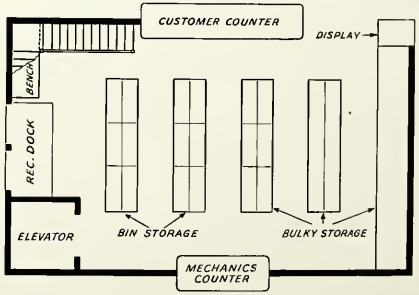
Aisles between bins and racks should be wide enough for the unhampered movement of large units. The area should be planned for the mechanical handling of stock.

The bulky storage area normally occupies 25 to 50% of the total parts department area. Large dealers require the higher percentages of bulky storage space. A minimum height of 9′ is desirable. The storage area is usually located on a mezzanine, in a basement or in a semi-basement below ramps.

Receiving and Shipping Area

Space is needed in the parts stockroom for storing crated merchandise until it can be unpacked and distributed to bins. Space also is needed for gathering and crating stock that is to be shipped. A standard work bench 4′ long and 2′ wide facilitates crating operations.

If parts are stocked or used on more than one floor, space is needed for stairs and elevators. Small elevators are available for personnel and stock. A dumb-



Four Elements of a Parts Stockroom

waiter 4′ x 4′ can be used for stock only. Stairs should connect stockrooms on different levels. A chain hoist operating on an overhead rail may be installed to hoist stock directly from delivery trucks to a bulky storage area on the mezzanine floor without going through the main floor stockroom.

It is convenient to locate the receiving center adjacent to a door opening into a parking space for parts trucks. Receiving space should be located where crated shipments will not interfere with the movement of parts department employes or with service mechanics or customers.

Parts Counters

Service department mechanics are accommodated at a counter 2′6″ wide and 6′ long. The counter should be located where it is convenient to those service stalls where parts are used in volume, and to parts department employes. Parts counters for customers and mechanics should be located so that extra help will not be needed to provide service at both counters.

Parts Stockroom Elevation Features

Partitions containing large glass windows are used to separate the parts stockroom from the service department in some dealerships (check Local Building Codes). This type of construction has merchandising value, provides better light distribution, and keeps dust and exhaust gases out of the stockroom and selling areas.

A door should connect the parts stockroom with the service department. A "dutch door" serves both as door and counter.

Placement of the Parts Stockroom

The parts stockroom should be located where it is readily accessible to parts customers, service mechanics and parts delivery trucks. To enable the same employes to wait on parts customers and service mechanics, the stockroom should be located between the parts selling area and the service department.

It is more important for the parts stockroom to be near the mechanical repair stalls where parts are used in volume, than near body, paint, lubrication or washing stalls where fewer parts are used. Dealers who do a large parts business should locate the department so that it is accessible for truck deliveries.

In multiple-story dealerships, a ground floor location is preferred for the parts stockroom because it is then near to the salesroom and the quick service stalls from which parts are called for in volume.

Oil Storage Room

A room for the storage of oil, lubricants, anti-freeze and shop materials should be constructed in full conformity with local building and safety codes.

An oil room should be planned for truck deliveries and for the mechanical handling of barrels. To save handling costs, some dealers are equipping their oil rooms with large storage tanks for bulk delivery of oil by tank-truck. Oil is piped under pressure to the lubrication stalls.

Similarly, large tanks are being used to collect crankcase drainings. A drain tank should be placed where drainings can flow into it by gravity. An outlet to the outside with pump or pressure equipment for emptying is desirable. This tank may be placed in the oil room or underground.

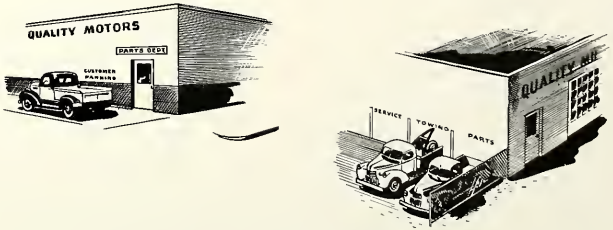
Parts Manager's Office

In large parts operations a private office is sometimes provided for the department manager. The office should be within or adjoining the parts stockroom.

Parts Department Parking Stalls

Dealers may promote parts sales by parking facilities for customers. Customers' parking facilities are particularly important at locations where curb parking is restricted. Parking stalls are also needed for dealer-owned parts trucks.

Partitions Separating Parts and Service Departments



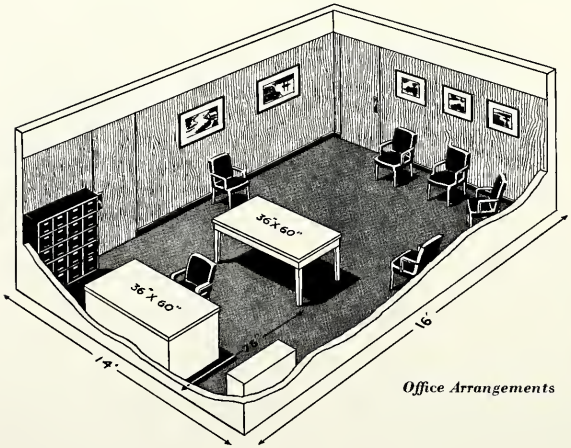
Parts Department Parking

MANAGEMENT AND PERSONNEL

Adequate space for administrative personnel and for customer and employe comfort can be as important as productive space to the successful operation of a dealership. Elements that should be considered in planning accommodations for customers and employes are:

Private offices	Washrooms
General office	Locker room
Stationery and Record Room	Shower room
Lunchroom	Janitor closet

Private Offices



Office Arrangements

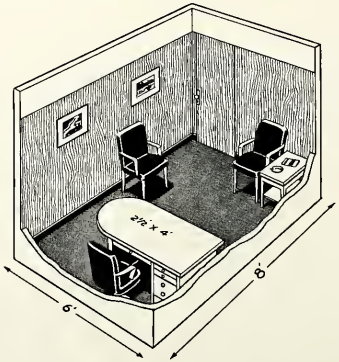
Private offices should be designed to increase the efficiency of those who plan and administer the affairs of the business. An office can make more human energy available for the problems of the business, by providing conditions that save time and reduce effort, and by eliminating or reducing distractions that waste energy. In planning offices dealers should consider:

Size of offices	Location of offices
Number of offices	Office elevations

SIZE OF OFFICES

The size of private offices should be determined after consideration of three factors:

Space for people,
Space for office equipment,
Space for atmosphere.



Space for People

Private offices in dealerships are planned to accommodate the occupant and two to four visitors. In smaller dealerships, the office of the dealer or sales manager may be designed to accommodate six to eight visitors so that it also can be used as a sales meeting room.

Space for Equipment

The equipment of a private office usually consists of a desk, chairs, private files and a coat rack. Sometimes a table, bookcase or other item is added. The space required for some standard equipment is indicated in the illustrations.

Space for Atmosphere

Private offices frequently provide more space than the minimum required for people and office equipment. The additional space is provided to lend prestige to the occupant and is justified by the psychological advantage it affords in handling dealership affairs. Comfortable, well-appointed offices help a dealer to hire and retain desirable department heads. Good offices act as a constant reminder that the dealer considers the activity important and deserving of the department head's best efforts. An attractive office of ample size also helps to impress customers with the importance attached to their call.

The amount of office space that is needed to give this psychological advantage depends on local practice. The office space that can be devoted profitably to atmosphere and prestige is related to the importance of the visitors.

NUMBER OF PRIVATE OFFICES

In modern business, it is regarded as good practice to provide private offices for management and for the heads of major departments. Fewer private offices are needed in small dealerships because two or more departments are managed by one person.

Private offices may be desirable for the following personnel:
Dealer
General Manager
New Car Sales Manager
Used Car Sales Manager
Service Manager
Parts Manager
Accounting Manager
Cashier

LOCATION OF OFFICES

Dealer or General Manager's Office

The dealer's office should be adjacent to the general office and stenographic assistance, and it should be as near as possible to departmental offices.

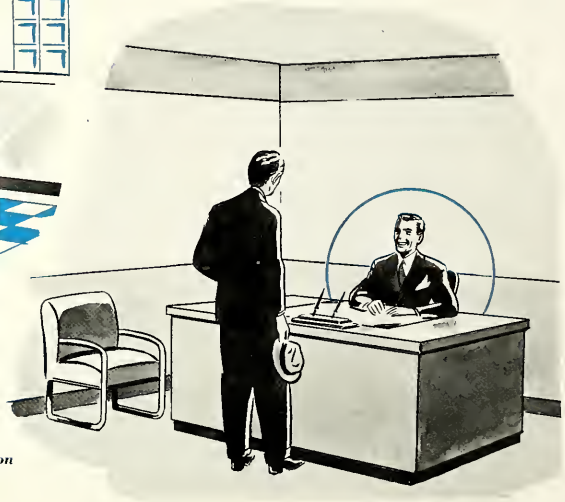
Offices for Department Managers

The offices of the new car sales manager, used car sales manager, service manager and parts manager usually are placed to afford a view of these operations.

Accounting Manager's Office

To facilitate supervision, this office should be located where it affords a view of the general office. It is also desirable for this office to adjoin the executive offices, so that records and data needed for the administration of the business will be readily available.

An Office Can Distract Attention



An Office Can Center Attention

OFFICE ELEVATIONS

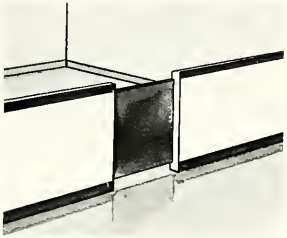
The importance that some sales executives attach to office interiors is indicated by the comments of an important executive who contributed to this book.

He explained that his private office was designed for "selling." Its features were selected to center the attention of visitors on the occupant—not to compete for the visitor's attention. The backgrounds against which the visitors and the occupant saw each other were free from glare and distracting detail.

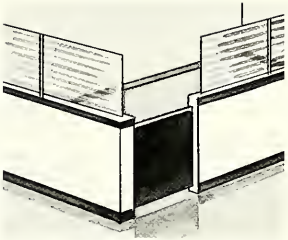
In discussing the wall finish he mentioned that a particular shade of green was chosen because it was directly complimentary to human complexions. This background color presented him favorably to his customers so they would be more receptive to his ideas; and it presented his customers favorably so that he was stimulated to put forth his best selling effort.

Dealers should specify elevation features that are an aid to selling, and avoid those that distract attention.

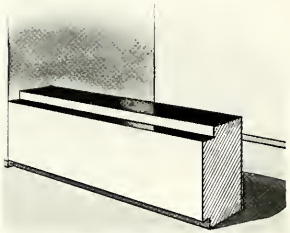
Standard Railing and Gate



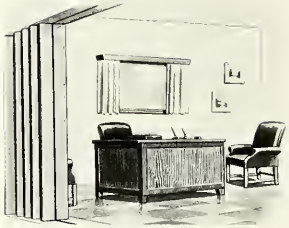
Glazed Railing



Counter



Folding Partitions



Types of Partition Design

A variety of types of partition structures are used to set offices apart from other space in buildings. Different designs and types of construction are suitable for different purposes.

Standard Railing The primary purpose of a railing is to guide traffic.

Glazed Railing This construction restrains reaching, thus providing the conditions needed for handling money or confidential papers.

Counters A counter is used both as a guide to traffic and as a desk for transacting minor business matters.

Ceiling-High Partitions Full privacy can be provided with ceiling-high partitions. Visual distractions can be controlled. Sound transfer between offices is limited by enclosure and can be reduced further by sound-absorbing wall and ceiling construction. Control of temperature and ventilation is possible through the use of transoms.

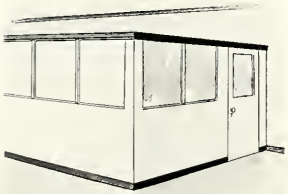
Cornice-High Partitions This design offers semi-privacy. It affords partial privacy for conversations and reduces the transfer of noise. It provides partial control of temperature, ventilation and physical entry. It may provide full visual privacy.

Folding Partitions This type of prefabricated partition is used between offices that are used separately at times and jointly at other times. It affords good protection against visual distraction and fairly adequate protection against transfer of noise.

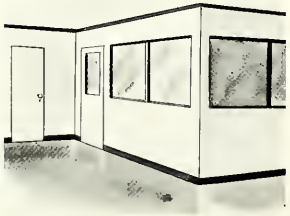
Partition Construction

Partition walls can be erected on the job of common structural materials, and they are also available in prefabricated panels.

Both stationary and portable partitions can supply the desired qualities. If a re-division of space becomes necessary, the shifting of movable panels and their attaching channels may be less expensive than moving permanent partition walls. Dealers in making their selection should compare the qualities of the two kinds of partitions and also initial and maintenance costs.

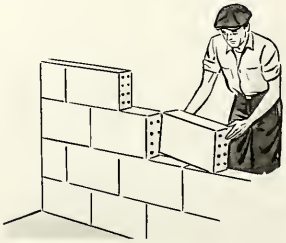


Cornice-High Partition

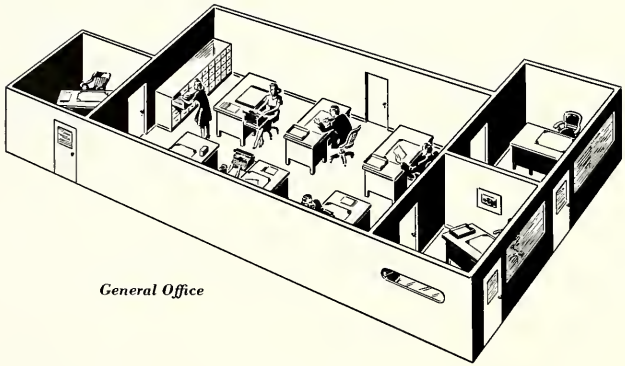


Ceiling-High Partition

Portable Partitions



Stationary Partitions



General Office

General Office

General offices provide space for employes and office equipment, but usually make little provision for the reception of visitors.

The size of a general office depends on the number of people employed and the amount of office equipment. Space normally is calculated on the basis of 70 square feet per person for one or two employes, and 60 square feet per person for additional employes. In counting the number of persons the seasonal variation in employment should be considered.

In large dealerships it is customary to provide a built-in vault adjoining the general office. Otherwise, the general office should provide space for vault equipment of a fire resistant type.

A general office is conveniently located when it is adjacent to the dealer's office and readily accessible to the operating departments. If the cashier is located in the general office, the office should be convenient to parts and service customers. In some operations it is desirable to locate the general office so employes can help to oversee the sales floors.

In multi-story designs the dealer's office and the general office often are located on a mezzanine or on the second floor. In single-story designs these offices may be located on a mezzanine, but this may necessitate some provision for cooling.

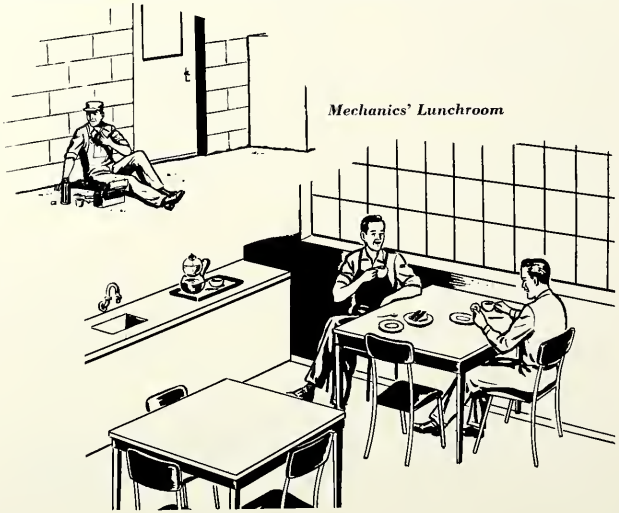
Stationery and Record Room

The stationery room should be large enough to accommodate current records, stationery and promotional literature. The room is convenient when it is near the general office but it may be located any place since it is infrequently visited.

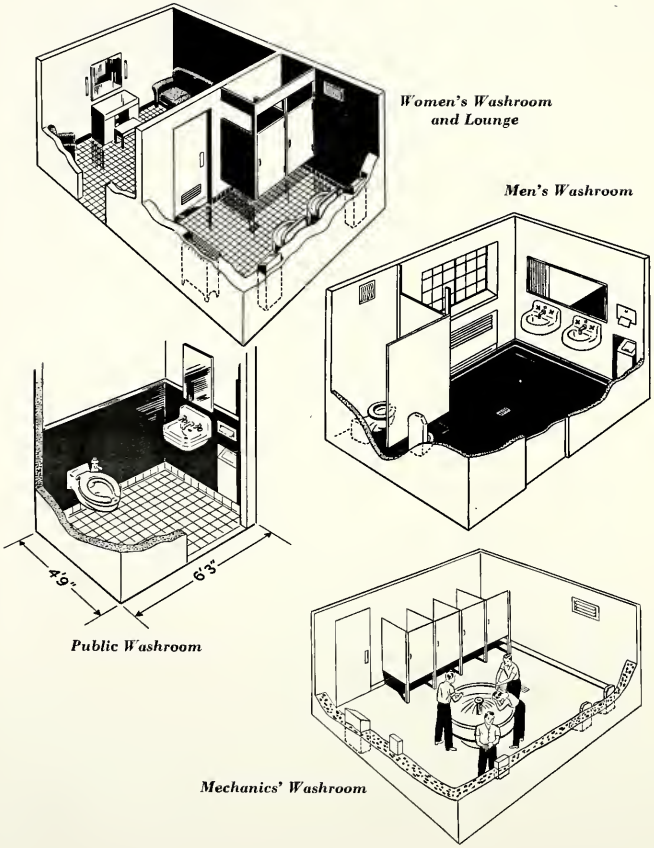
Lunchroom

Better employe accommodations stimulate better work attitudes and improve employe morale. The labor market will be influenced for years to come by the high standards of employe comfort that are provided by the personnel facilities now in use in industrial plants. Dealers should acquaint themselves with the standards of employe comfort that are current in industry before specifying the facilities for their own buildings.

The lunchroom facilities provided by automobile dealers vary from a room equipped with tables and benches to rooms equipped for making coffee and serving some food.



Mechanics' Lunchroom



Washrooms

Washroom size is determined by code requirements plus a consideration of the number of persons who will use the facilities and the amount of equipment to be provided. Local plumbing and building codes establish minimum requirements for washrooms, but business and industry normally provide sanitary facilities that are well above minimum standards.

Washroom Features

Off-the-floor construction is favored in washrooms because it facilitates maintenance and sanitation.

Wall-hung closets, urinals and lavatories with concealed plumbing are an aid to sanitation and have good appearance.

Ceiling-supported closet compartments are used in the men's and women's washrooms. The more rigid floor-supported compartments are used in the mechanics' washroom.

Recessed towel dispensers, waste receptacles, heating units and lights are an aid to orderliness in washrooms.

Wash fountains in circular or semicircular form are popular for mechanics' washrooms.

Plumbing fixtures in shades of tan are preferred because they show less stain.

Washroom floors should have coved corners and be equipped with drains. The floor should slope toward the drains and be constructed of a material that can be cleaned readily.

Mechanical ventilation may be desirable in some instances.

A table, couch, and chairs are normal equipment for the women's restroom.

TYPES OF WASHROOMS

Car dealerships require three or four types of washrooms.

Men's Washroom

A washroom for customers and office employes normally is located where it is convenient to the showroom, service waiting room and offices. Some dealers also specify a private washroom to adjoin their private office.

Women's Washroom and Lounge

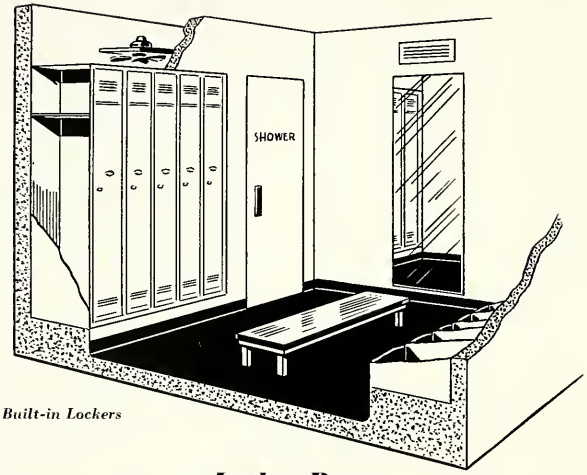
A restroom suitable for customers and office workers normally is located where it is convenient to the general office, showroom and service waiting room.

Mechanics' Washroom

The washroom(s) for mechanics are located in the service and parts departments for convenience to the productive workers. The facilities shown are adequate for the use of 25 to 30 workmen.

Public Washroom

Public washrooms are necessary in connection with a gasoline filling station operation. They should be located for convenience to filling station customers. The women's restroom should be accessible through an outside entrance. The men's restroom usually is located where it can be reached from an inside entrance, making it necessary for users to pass through the filling station's salesroom where they will see displays and advertising.



Built-in Lockers

Locker Room

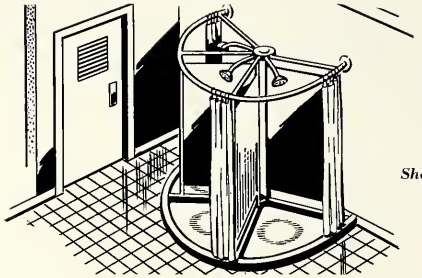
Lockers are provided for workers in the service and parts departments.

Built-in lockers improve appearance and reduce maintenance by eliminating dust-catching space above and below lockers. Ventilation is necessary to dry street clothes that have been exposed to rain, and also to dry work clothes. Mechanical ventilation speeds drying and removes odors from the locker room.

In some large dealerships several small locker rooms are preferred to one large locker room. The reasons given are: the men prefer to share locker room accommodations with the men they work with. The men maintain better order in small locker rooms because of closer personal ties between them and decreased congestion. Small locker rooms near to the work stations save time.

Locker rooms may adjoin but should not be combined with toilet rooms, shower rooms or lunchrooms. Locker rooms, regardless of how well kept, acquire odors and so are not well suited for use as lunchrooms.

Locker rooms, shower rooms and runways are sources of floor-borne infection of the feet (athlete's foot). Contamination can be controlled by the use of a new floor surfacing material called "hubbellite" which contains cupric oxychloride. The covering can be applied over wood or concrete in a ⅜-inch thickness.



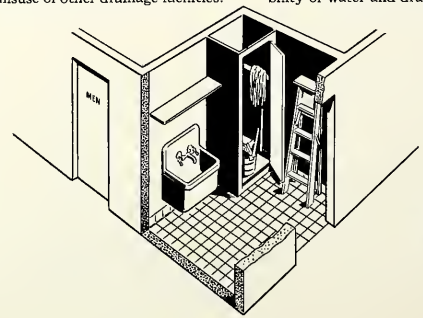
Shower Facilities

Shower Room

Dealers who have provided showers report that their productive workers use and appreciate them. Shower cabinets can be purchased as prefabricated units or they can be constructed on the premises. Shower rooms preferably should be located near locker facilities, but not within the locker rooms.

Janitor Closet

Conveniently located janitor closets promote efficiency in maintenance and discourage misuse of other drainage facilities. It is economical to locate janitor closets near washrooms because of the availability of water and drainage lines.



Janitor Closets Promote Better Maintenance

STORE FRONT DISPLAY

A well organized store front is one of the best advertising mediums. It has the advantages of being located at the point-of-sale—presenting three-dimensional merchandise instead of pictures—always appearing in color—and arousing on-the-spot customer interest.

Since a store front is a means of advertising products and services, its appearance and cost should be related to its advertising function.

This section is concerned with—

Dealer Interest in Store Fronts
Procedure for Store Front Planning
General Composition of a Store Front
Store Front Features

Dealer interest in store fronts

Merchants and builders do not have identical interests in "store fronts" so they often use the term in different ways. When a builder refers to a store front he usually means the exterior elevation that borders on the main street. But when a merchant refers to a store front, he means any elevation—visible to street traffic—that affects sales.

Dealer interest in a store front goes beyond the facia of the building. It extends to interiors that are visible from the street, to side elevations that influence buying, and to signs that are placed at the front, side or rear of the property. In short, dealers are interested in any elevation feature that causes traffic to look, stop and enter a place of business.

Dealer interest in store fronts is broader than can be shown in an architect's drawing because drawings are limited to a single fixed viewing point, while moving traffic sees the property from many viewing points. Further, such drawings are made from an angle and elevation that will show as much of the building as is possible, although street traffic may never see the building from such a viewing point. Hence, many store front characteristics that are of interest to a dealer may not appear in an architect's drawings.

Basically, dealers should be concerned with the sequence of perspectives that traffic sees from established routes, because it is the summary impression gained through a moving perspective that affects sales.

Procedure for store front planning

In times past, store layouts and elevations were planned separately. But modern merchandising associates exteriors and interiors so closely in the selling function that to be fully effective they must be planned together. Modern architecture has responded by planning store interiors and exteriors as inseparable parts of a single selling unit.

The following sequence helps to integrate layout and elevation features in store front design:

First, plan the display requirements of individual departments
Second, prepare floor plans that approximately allocate display space to each department
Third, plan the general composition of the store front
Fourth, plan the store front features

The first two steps in store front planning were considered in planning departmental display requirements. Only the last two steps remain to be discussed.

It is good practice to plan functional requirements ahead of appearance requirements. Giving first consideration to departmental functions does not mean that store front appearance must always yield to a rigid floor plan. Departmental plans and elevations often require modification to achieve a store front that has unity and a pleasing over-all appearance. If modifications are needed, they can be made advantageously after both departmental plans and preliminary store front designs are available for comparison so that the most desirable design ideas can be retained.

A Store Front Should Advertise

General composition of a store front

Too often store front planning is looked upon purely as an appearance problem, although beauty is only one of the goals to be achieved.

The central objective in store front planning should be to increase the selling efficiency of a dealer's property. This means developing the store front so as to obtain institutional advertising values in addition to departmental advertising. It means grouping departmental displays and signs so that collectively they will deliver a more forceful advertising message than they could individually. This is more than merely avoiding conflict between departmental displays.

Three important factors that should be considered in planning the general composition of a store front are:

- Plan the store front to attract attention
- Plan the store front to identify the business
- Plan the store front to draw customers inside

PLAN THE STORE FRONT TO ATTRACT ATTENTION

Many devices are used to catch the eye of customers, but they are based on relatively few principles. These might be classified as attention gained through:

Size	Movement
Contrast	Color
Pattern	Brightness

Attention Through Size

Traffic sees and comprehends large objects far faster than detail. Hence, size is a primary factor in attracting attention, particularly that of fast traffic.

Automobile dealerships require larger buildings than most retail activities. Dealers can exploit the advertising advantage that is inherent in the size of their buildings at practically no cost.

More height is needed for a service department than for most other commercial establishments. Where vertical size will get attention, the service elevation may be used at little cost.

The width of a store front is not rigidly restricted to the frontage at the building line. Store front width may be increased by angling show windows, recessing doors, and using set-backs. Open store fronts that display the depth of salesrooms have the effect of increasing size.

Color can be used to expand the apparent size of the store front. For example, light colors cause the surfaces they cover to appear larger.

Size and Contrast for Attention

Attention Through Contrast

Contrasts that stimulate comparisons are important in gaining attention. Contrasts may be developed between a store front and its surroundings, between exteriors and interiors, and between merchandise and its settings.

In planning to contrast a store front with its surroundings, attention should focus first on neighboring stores and structures. Along a street where stores are a single story high, a service department (approximately two stories) is in strong contrast. Sign towers also can be used to provide vertical contrast. In a multi-story section, a single story showroom will provide contrast.

Where neighboring store fronts are flush with the building line, a set-back is in contrast. Projecting showrooms and landscaped plots contrast favorably with flat expanses of glass.

Contrast provides novelty but extremes should be avoided. Fads are based on contrasts that lack purpose or functional validity. Hence, they soon lose popularity and attention value. In a community where a certain style of architecture is current, a different style of architecture would provide a sharp contrast, but it also might be offensive. Contrast should not be carried to the point of conflict.

Contrasts in texture, finish and color draw attention; rough surfaces contrast with smooth surfaces; shiny finishes with satin (or matte) finishes; darkness with brightness; and one color hue with another. Such contrasts can be applied effectively to backgrounds for signs and displays.

Attention Through Pattern

Materials and colors may be fashioned into patterns that arouse interest and direct attention. Pattern is important to the building in its entirety, as well as to its component signs, show windows and solid elements.

Many older store fronts contain small decorative designs but lack any overall pattern or idea. These fronts were created for traffic that moved leisurely and could examine details. As the speed of traffic increased, small patterns gave way to long flowing lines and continuous moldings. Today, patterns formed by lines are less used. Lines appear to have been only an intermediate step toward the present use of mass which has the force needed to impress fast-moving traffic quickly.

To attract attention today, a store front should have one dominant theme or motif. The dominant pattern should be quickly recognizable to traffic that moves rapidly and which may have no immediate interest. Subordinate points of interest may be included in the main pattern for traffic that moves more slowly or that has a present interest.

The use of mass in forming the dominant pattern finds expression in sign towers, windowless second stories, and large solid sign elements. Some elements are given a massive appearance by the use of three-dimensional color treatments, and by carrying exterior wall treatments around to the interior wall. Canopies also are used as dominant elements.

Interiors are used as dominant elements in many modern store fronts. Visual fronts emphasize interiors through the use of large glass areas and by treating walls and piers as a framework for the window, rather than as a separate attracting element.

Variations in shape can be used to arouse interest. Store fronts containing a series of show windows of the same size and shape may lack pattern and interest. Store fronts can attract more attention if they are composed of display cases and recessed, projecting, eye-line or angled show windows. Varying the height of bulkheads changes the size of both the windows and solid areas. Interest can be aroused by an off-center entrance that varies the size and angles of windows.

But variations in shape should not obscure the dominant pattern. Store fronts with too many shapes or with over emphasis on detail appear "busy" and make only fleeting impressions.

Patterns that may cause confusion should be avoided. A window or other element that is square or oblong conveys a definite impression and does not confuse as does one that is "nearly" square. Similarly, confusion is caused by tilting windows or walls at such slight angles that it is not immediately apparent whether the angles were intentional or the result of errors in construction. Patterns that are confusing distract attention and divert interest.

Pattern and Brightness for Attention

Attention Through Movement

Movement is effective for attracting attention and it is widely used on store fronts. The most common use of movement is in electric signs. Mechanical devices also are sometimes used to move displays or signs. Mirrors reflect movement. Clocks, thermometers, and weather forecasting mechanisms are also effective in attracting attention.

Attention Through Color

Small stores frequently seek distinction through the use of vivid colors. Color competition between unrelated stores often produces a riot of contrasting colors along a street, resulting in little distinction for any individual store front.

On streets characterized by variety in color, dealers can attract attention by using one color for their entire store front. Different tints, shades and tones of the same color can be used to letter signs, to form patterns or to focus attention.

Flexibility and variety in color also can be provided through lighting.

Attention Through Brightness

Surveys show that brightness is a top ranking factor in attracting attention and in arousing interest. Brightness is the amount of light that objects reflect toward a viewer's eye. The more light that stimulates the eye, the quicker objects are seen, and the more the viewer recognizes and comprehends in a given amount of time. The brightness of a store front has much to do with its visibility. Both color and light are used to increase brightness.

Brightness in a store front usually is reserved for displays and for sign lettering on which the merchant desires to focus attention. The brightness of solid materials often is subdued to direct more attention to displays and sign lettering.

Identity with the Community

PLAN STORE FRONTS THAT IDENTIFY THE BUSINESS

Some phases of store front identification are better planned than others. Signs identifying the product and the firm name usually are planned with great care. But signs only partially identify a business.

A store front identifies a business in other ways. It reveals how well a business is identified with the community, with the times, and with the interests of customers. Too frequently such identification goes unplanned or is left to chance.

Store fronts should be planned to—

- Identify the store front with the product
- Identify the store front with the firm name
- Identify the store front with the community
- Identify the store front with the times
- Identify the store front with consumer interests

Identify the Store Front with the Product

A store front should identify the brands, products and services offered by the business.

Displaying an advertised trademark or brand name is the quickest way to acquaint customers with the identity of a business. Product signs, therefore, should be visible to all important routes. They should be placed at focal points of interest on a building.

The range of products and services can be identified by smaller signs and by displays. Car displays can repeat the brand identification. Authorized service signs, approach aprons, entrance doors and towing trucks help to identify service activities. The parts activity can be identified through departmental signs, parts displays and suitably lettered delivery trucks.

The character of the products can be expressed by the exterior treatment of the building. Building materials known for ruggedness and strength can be used in buildings for truck operations to suggest the dependability of the product. Building materials of fine texture and color are in character with a passenger car business.

Identify the Store Front with the Firm Name

A store front should display prominently the name of the business to all important traffic routes. Several signs and locations may be needed to cover all traffic streams.

The problem of identification is simplified when the firm name is combined with product identification, such as "Jones Chevrolet Co." Such a name identifies both the supplier and the product.

Identify the Store Front with the Community

A store front should be appropriate to the community and neighborhood in which it is located.

In long established communities, existing buildings may express a preference for a certain architectural style (Colonial, Spanish or other). People in such communities are conditioned to particular designs and materials. A dealer who plans to erect or modernize a store front in such a community should weigh the advantages of following the established trend, against assuming the burden of obtaining acceptance for a different style of architecture. A desirable compromise in such situations may be to adopt a modern design and then execute it in traditional materials. With a modern design the finishing materials can be changed or covered with newer materials when the time seems opportune.

In newer communities, many store fronts are modern in style and materials. In planning a store front for such a community a dealer should aim for styling and appearance that will compare favorably with existing store fronts, and with any stores that are likely to be constructed in the foreseeable future.

Businesses located adjacent to residential sections should adopt store fronts that harmonize rather than intrude upon the residential atmosphere. Walls facing residential property may well be constructed of building materials similar to those used in the residences. Buildings may be set back from the building line to create open plots that can be landscaped. Screen walls can shut off undesirable scenes.

Identify the Store Front with the Times

A store front should give the impression of being modern, irrespective of the year in which the building was constructed. A building that is modern in appearance suggests that the products and methods of the business are modern. A store front may be either "traditional" or "modern" in styling, but it should be fresh in feeling and appearance.

A store front should not appear "dated." Customers expect businesses and buildings to be modern at the time they are ready to patronize them. Planning can do much to avoid the premature dating of a building. If the fundamental design of a building is sound, the building can be kept modern over an extended period by changing older materials as they are superseded by newer materials.

Novelty may be justified in signs or materials that can be changed readily, but novelty in structural design should be avoided. Novelty attracts attention but imitation destroys novelty and lowers attention value. This causes buildings incorporating the once novel design to appear outdated. If novelty is incorporated in the structure, it is expensive to change and difficult to conceal.

Identify the Store Front with Customer Interests

Many times a store front reveals management's attitude toward its customers. In a well-planned store front effort is made to display fixtures, features and facilities that show a regard for customers.

For example, a display of customer parking space is an invitation to stop and shop. Service departments can use entrance aprons and parking courts to show interest in service traffic. Certainly automobile dealers have every reason to extend an invitation to automobile traffic.

Guide lines and signs for directing customers may create an impression of helpfulness or reveal an arbitrary attitude. It all depends upon how they are used.

The display of a parts loading dock or of mechanical handling devices identifies management's interests with those of the parts user.

Store fronts should be neither so plain as to suggest inadequate facilities, nor so pretentious as to suggest that pricing may not be competitive.

PLAN THE STORE FRONT TO DRAW CUSTOMERS INSIDE

The final function of a store front is to convert street traffic into floor traffic.

Surveys reveal that fewer people stop to look at displays facing congested sidewalks. So, where pedestrian traffic is heavy in relation to sidewalk space, outside aisles should be considered. It is unusual to consider the need for pedestrian aisles outside of a store front, but the pulling power of a good entrance more than offsets the reduction in interior sales floor space.

A recessed store front provides the "elbowroom" so that people can be drawn toward the entrance by an attractive sequence of displays. A set-back extends an obvious invitation to window shoppers.

With a recessed store front the sidewalk can be "pulled inside" by surfacing the showroom floor and the set-back with like materials.

A corner store can be set-back along both streets to form a convenient short cut that channels traffic toward the show windows.

Identity with Customer Interests

In modern stores with visual or open fronts, the windows are located to suggest that there is no glass barrier between the outside and inside of the store. This is done by carrying the materials used on the outside pier or wall to the inside wall. The process is sometimes reversed by carrying inside wall treatments out beyond the glass. Either treatment suggests an absence of glass and leads people into a salesroom psychologically.

Free-standing doors and those constructed entirely of glass reduce visual obstruction, and suggest freedom of access.

Store front features

After the layout of departments and the general composition of the store front have been planned, consideration can be given to the elements that comprise a store front. Store front elements should be planned individually and in relation to each other. The elements selected for consideration are:

- Show windows
- Solid elements
- Signs

SHOW WINDOWS

In unit planning, consideration was given to the display requirements for individual departments and activities. In planning the general composition of a store front, consideration was given to integrating departmental displays so as to achieve one comprehensive display. The phase of window planning that remains to be considered is how show windows should be related to the remainder of the structure.

In older store fronts, windows were thought of as parts of the wall separating the inside from the outside. Window displays were regarded as stage settings arranged for street traffic only.

A later concept regards the store interior as being open to the street, and endeavors to make the separating glass as inconspicuous as possible. This concept is embodied in the design usually referred to as the "visual front."

There are many ways by which the glass is made less conspicuous in visual front stores. One of the more extreme methods consists of raising the entire show window while the store is in operation.

In visual front stores, the windows usually are located to create the illusion that there is no glass between the outside and inside. This is done by carrying the outside materials around to the inside wall and beyond the glass. The process is sometimes reversed by carrying inside wall treatments out beyond the glass.

The floor treatment of the interior may be extended to the exterior if there is space between the building and the building line. The bulkhead below the window can be finished in a similar color to the floor to further minimize differences that separate the inside from the outside.

Where a canopy or second floor overhangs the show windows, flood lamps can be recessed to light the exterior to a brightness equal to that of the interior.

The use of large window panes supported by small mullions and division bars helps to foster the appearance of an open front.

The conventional show windows are still in use but they lack the flexibility and range of an open display because of curtailed dimensions. An open front accommodates more varied arrangements. They display store atmosphere as well as merchandise. An open front can be converted quickly to a closed front by means of portable foregrounds and backgrounds.

SOLID ELEMENTS

The structural and exterior surfaces of a store front are commonly known as the solid elements.

In selecting a material for the outside of a store, dealers should be particularly interested in display value, durability and ease of maintenance. A good choice of texture and color in wall materials is needed in stores where the exterior wall treatment is carried to the interior in forming a visual front. Interesting materials are needed for large wall surfaces.

Solid elements frame show windows and form the background for signs. They should be chosen in relation to those functions.

SIGNS

Signs should be planned with regard for factors that influence their effectiveness. Some things to be considered are—

Location	Lettering
Size	Coloring
Background	Lighting
Message	

Sign Location

Signs advertising the product or the firm name should be located for visibility to approaching traffic. Signs advertising departmental activities should be located with reference to these facilities.

Signs can be placed more directly within traffics' field of vision where building codes permit signs to overhang the building line.

Signs located at right angles to traffic flow produce more advertising value at lower cost. Signs that face in two directions enjoy a larger audience and repeat their message more frequently. The cost of two-way visibility is low because the sign structure serves a dual purpose.

The general composition of the store front is another determining factor in locating signs. Where a sign forms the dominant theme of a store front design, the sign should be located near the main display to heighten the central point of interest, and so that it will not become a competing point of interest.

Size of Signs

The size of a sign depends on traffic, visibility and shape. The traffic that can be influenced directly affects the investment and indirectly the size of a sign.

Visibility is another factor affecting sign size. As a general rule, a sign should be large enough to be seen distinctly from the most distant point at which it comes into the field of vision.

The proper size for a sign also is influenced by its shape. A sign in the shape of a well-known trademark is recognizable from a distance, and the lettering becomes legible as the viewer comes closer to it.

Sign Background

Background is as important to a good sign as white space is to a good newspaper advertisement. The background usually is the first part of a sign to draw attention because it is larger than the lettering upon it. A sign with an interesting background material and with lettering that is well-proportioned and well-placed is more effective than a sign of like size with lettering or decorations spread over the entire background.

Large plain backgrounds attract attention by size. They hold interest because they are restful to the eye. Plain backgrounds eliminate distracting detail and provide strong contrast for lettering. Windowless second (and third) stories provide plain sign backgrounds for drawing attention.

Expanded Lettering

Proportioned Lettering

Sign Message

The function of a sign is to "exclaim" not to "explain." The fewer words and letters on a sign, the more quickly it can be read and the more likely it is to be read. One word that discloses the type of products or services available is more effective than several words that attempt to describe the inventory in the same space.

Sign Lettering

Simple lettering can be read quickly by fast traffic. Ornamentation should not be permitted to interfere with legibility. The lettering should be in harmony with the architectural style of the building.

Letters on signs should be of a size appropriate to the distances from which they will be read. Merely proportioning sign letters to the available building space may prove expensive and may not produce a satisfactory advertising result. The width of a sign message can be controlled through the use of type faces. Condensed letters reduce the width of the message. Extended letters spread the message over a wider surface.

The visibility of a sign is not directly proportionate to the size of the lettering. High visibility can be achieved with legible letters that occupy only a small portion of a background. This technique relies on the background to draw attention, and highly legible letters to hold the interest.

Sign letters may be two-dimensional, three-dimensional or channeled.

Two-dimensional letters such as those painted on a flat surface are much used

for departmental signs. They also are used on signs that are floodlighted.

Three-dimensional letters such as block letters are more interesting and more expensive than flat letters. They are used for signs advertising the product or the firm name. Three-dimensional letters are needed for silhouette lighting and backlighting. Plastic letters are used for edge-lighting and to secure other unusual effects.

Channeled letters are used to increase the legibility of a sign at night. Lamps set into a channel letter neither spill light over the sign background to reduce contrast, nor contribute to a general diffusion of light that blurs the message.

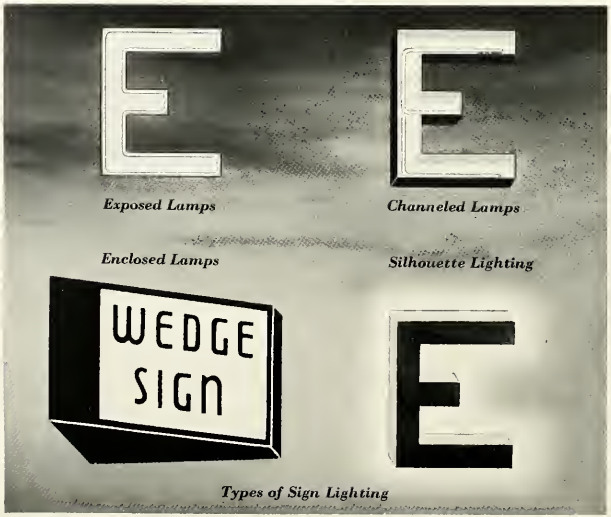
Sign Coloring

In choosing sign colors, it is always important to consider the color relationship between the letters and the background; also how the color scheme will influence visibility under natural and artificial light.

Generally speaking, a sign attracts more attention in daylight if its background is light in color, and its lettering dark or medium in tone. Light colors tend to swell in size and advance toward the spectator, hence, light-colored signs appear larger than they really are. A background is the largest element in a sign, and its size can be amplified by using light colors.

Where silhouette lighting is to be used for the letters, it is particularly desirable to have a light background to achieve higher levels of brightness at lower costs. Signs that are floodlighted also benefit in visibility from light-colored backgrounds. Where neon type lighting is used, it is customary to color the background dark and use letters in white or light color to get a more striking contrast between the illuminated lettering and the background.

Signs usually are finished in contrasting colors. Complementary colors are effective for producing strong contrasts. Anodized aluminum, stainless steel and other metallic finishes are interesting in appearance and require little maintenance.



Types of Sign Lighting

Sign Lighting

Lighting should be planned carefully for any sign because lighting extends the advertising day.

Several factors should be weighed in deciding the amount of lighting to provide. The density of traffic affects the return that can be expected from the lighting investment. The amount of competing illumination along a street determines the light intensity needed to get attention. Signs containing detail require higher illumination to make the pattern stand out clearly. Colors in strong contrast are visible with less light. Dark colors absorb light and therefore require a higher light output for equal visibility.

Signs can be illuminated in four ways—by exposed lamps, enclosed lamps, flood lamps and silhouette lighting.

Exposed lamps are most common form of sign illumination at the present time. Tubes are bent to various shapes to form both lettering and decorative effects. This type of lighting is modern in appearance. It has a relatively high brightness and possesses good attraction value. At close range exposed lamps are a little too bright for eye comfort, so their effectiveness for sustaining interest is less than is obtained from more subdued forms of lighting.

An enclosed lamp sign consists of a box-like enclosure formed of solid materials, with cut-out letters of transparent or translucent materials. In some instances the scheme is reversed so that the background is transparent and the lettering is opaque. This type of sign is lower in brightness and attraction power than an exposed lamp sign, but it is easy on the eyes and retains interest.

Flood lamps illuminate both background and lettering of signs. Floodlighting can be done with overhanging projectors or with projectors located on the roof, cornices or canopies of a building. Flood lamps should be aimed so that no direct light shines in the eyes of traffic. The projectors should be concealed if possible. This type of lighting is very effective because a large illuminated background draws attention, and the sign holds interest strongly because no direct glare reaches the eye.

Silhouette and shadow box lighting are used in many modern signs. The silhouette effect is achieved by mounting lamps in the rear of opaque sign letters, and arranging the letters so the light will illuminate the sign background. Shadow box lighting consists of free-standing letters usually arranged along a canopy or cornice with illumination from behind. These forms of lighting are low in brightness and attraction power. Their soft light is restful to the eyes and they are rated very high in holding interest.

All four forms of sign lighting are effective. The choice of type depends upon the lighting competition in the neighborhood, the kind of background the building provides, and the relative emphasis the dealer wants to place on attraction power and interest.

PROBLEMS, PLANS AND PERSPECTIVES

This section presents in outline the major steps involved in planning a new property; these are—

Analysis of the problem
Development of the plan
Creation of the perspective

In each of the sixteen presentations different conditions have been assumed which included variations in the size of the business, number of departments, type of site, land values and other factors. In each presentation the "Problem" defines the most important conditions. Ideas for solving the problem are discussed under "Plan" and "Perspective." Plan drawings and a perspective view accompany each discussion.

The plan drawings are a combination of plot plan and floor plan in which land areas are shown in gray and building areas in blue. The land and floor areas devoted to the various activities are summarized in a "Space Analyses" that tabulates both feet and percentages.

USED CARS
Quality Motors
SALES
GM
SERVICE
Quality Motors
PARTS
GM
SERVICE

NO. 1 IN A SMALL COMPETITIVE COMMUNITY

PROBLEM

It is assumed that this dealer holds a franchise for the sale of passenger cars in a small community; that competition is active in all lines, and that merchants make effective use of buildings and store fronts in seeking trade. The dealer's budget is sufficient to erect a compact building possessing the good appearance needed to cultivate the sales advantages of his location.

A corner lot is selected for the business. The lot is on a trunk highway at the fringe of the central shopping district. The site is on the right side of the street to traffic driving away from town, so the heaviest volume of near-side vehicle traffic passes the dealership in the late afternoon. The lot is on the far corner to main street traffic and presents excellent opportunities for display.

The dealer can expect to draw customers from the heavy vehicular traffic moving along the main street, and from pedestrians who park their cars beyond the dealership and walk to and from the central shopping district. The side street serves a residential area and carries little traffic.

PERSPECTIVE

New Car Display

In developing this street elevation it is felt that the display advantages of the corner will yield the greatest profit if used to feature new cars. Since vehicle traffic constitutes the principal audience for the dealer's show window displays, the main show window is placed where it faces approaching highway traffic. Positioning the show window in this manner provides longer visibility from a better viewing angle, and with minimum interference from veiling glare and reflections on the surfaces of the glass. At the point from which the largest number of motorists see the showroom display, the view is free of supporting columns or window division bars.

The showroom interior, likewise, is developed to improve the qualities of the window display. To provide the quick comprehension needed to appeal to motoring traffic, it is necessary to simplify the display scene by eliminating unnecessary and distracting detail. The back wall of the showroom is, therefore, developed as a background for the window display. The offices behind the showroom are not permitted to intrude on the display scene. Employes in the office can, however, see the showroom through the perforated screen that forms the background for the GM product insignia. Flush doors provide access to offices without complicating or intruding on the showroom scene.

Used Car Display

Attention is directed to the used car activity by extending the sign area of the main building across the front of the used car lot, and by the use of distinctive pylons. The atmosphere of the lot is improved by the use of a permanent fence at the side of the lot and by portable fences that separate the sales lot from the service parking lot.

Permanent structures on the used car lot lend an atmosphere of stability to the activity.

Parts and Accessories Display

The parts department is given a position of prominence facing the main street. Its show windows are designed to give street traffic a view of the parts store interior, and of the parts stock stored in bins. Direct access is provided from the street to the parts store.

Service Display

The service entrance is placed on the side street away from traffic congestion. The morning traffic stream which contains the largest number of service customers moves on the far side of the street from the dealer's place of business. Placing the service entrance on the side street permits customers to turn left at a street intersection.

Store Front Display

A central problem in developing a store front for this dealership is how to attract the attention of fast-moving vehicular traffic to the relatively small building required for the business. To gain attention and suggest the availability of all necessary service facilities, an impressive store front is an absolute requirement.

To obtain the advantages of size at low cost, the store front is extended across the full width of the property including the used car lot. The framing around the parts bin display repeats the splayed design of the used car pylons, in order to establish an appearance of unity between the interior and the open lot.

The exterior of this building can be fabricated of metal, pressed asbestos sheathing, or other materials.

PLAN

New Car Department

The new car showroom is designed to accommodate one car arranged as a combination advertising and merchandising display. The functions of the sales manager are performed by the dealer, so his office is conveniently located adjacent to the new car showroom.

Used Car Department

The used car sales area is designed so that three cars face sidewalk traffic. Cars on display along the driveway are arranged at an angle to facilitate demonstration and to direct a good frontal view of the cars toward passers-by on the street.

Service Department

The service department entrance is located on a side street. It is unnecessary to provide an approach apron since this street carries little traffic, and service department traffic is also light. Service reception takes place in the aisle. From there cars are driven into productive stalls or directly ahead to the service parking lot.

The stall immediately inside the service entrance is less accessible than other stalls. Hence, it is assigned to heavy repairs which work requires an infrequent movement of cars. More accessible stalls are used for work necessitating a frequent change of cars. The paint spray room is located in the corner of the building where the outside walls form a portion of the enclosure. The wash rack adjoins the paint spray room. A common partition separates the wash rack and paint spray room enclosures.

The service manager's office is located just inside the entrance so he can observe customers approaching and entering the service department. The service cashier's desk is in the general office.

Parts and Accessories Department

In this design the parts selling area, stockroom and bulky storage areas are all located on the ground floor. Main street frontage is used to display the parts store interior to street traffic. Parts and accessory table displays are arranged to attract the attention of those who enter.

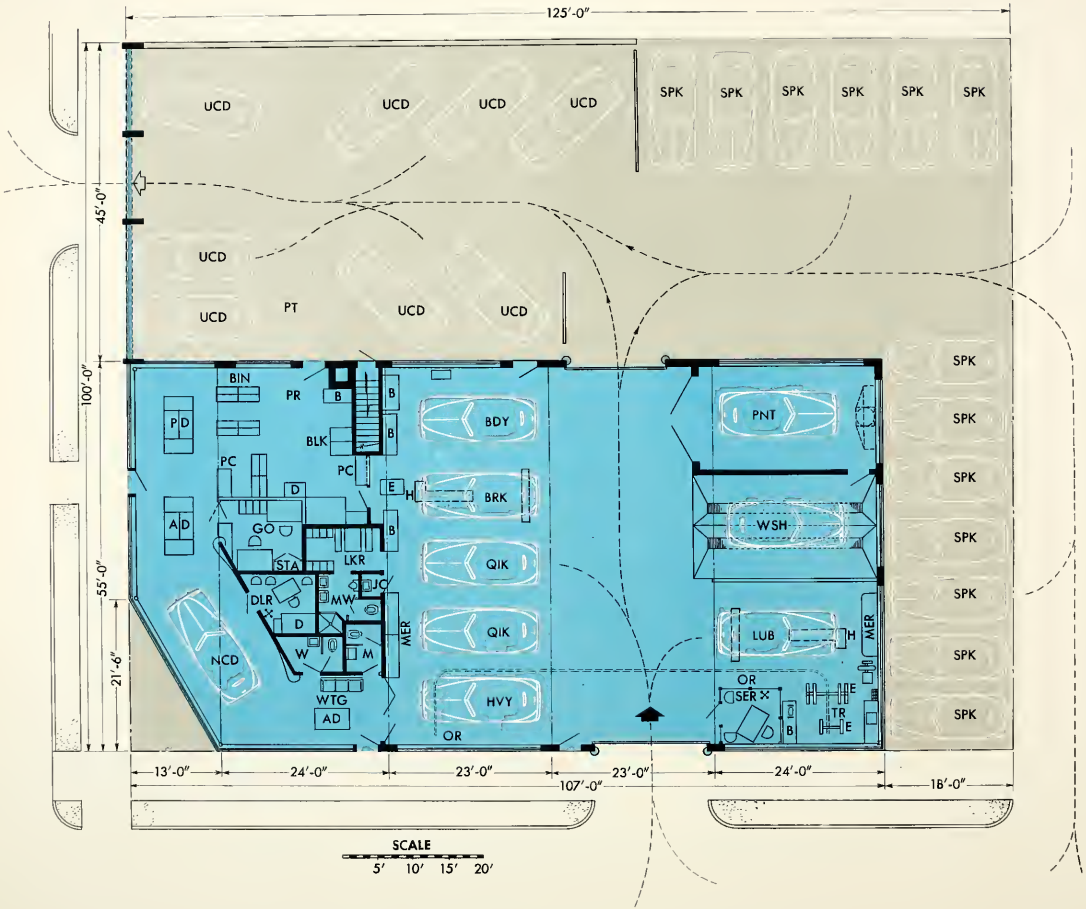
The stockroom is centrally located in relation to the customer counter, mechanics' counter and parts receiving. Fast-moving parts are stored in twelve standard bins. The bulky storage area adjoins the parts receiving center. The parts receiving center connects directly with a parking space for the parts truck. This arrangement facilitates both receiving and shipping.

Management and Personnel

The office for the dealer is convenient to the general office as well as to the productive activities he supervises. A common waiting room is provided for sales and service customers. Washroom facilities for both employes and customers are located conveniently. A small janitor closet is provided to facilitate maintenance.

SPACE ANALYSIS—PLAN NO. 1

Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(7%)	(4%)
Showroom	1	405	534
Used Car Department			(24%)
Used Car Display	8		3060
Service Department		(70%)	(61%)
Productive Stalls Avg. Floor Area per Stall 474 Sq. Ft.	8	3787	3787
Parking Stalls Ratio of Parking to Prod. Stalls 1.6:1	13		3565
Service Rooms		150	150
Service Offices		81	81
Parts and Accessories Department		(14%)	(7%)
Parts Sales		434	434
Bin Storage		161	161
Bulky Storage		88	88
Receiving		150	150
Management and Personnel		(9%)	(4%)
Offices		196	196
Personnel Conveniences		294	294
TOTAL	30	5746	12,500



AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
GO.....General Office
H.....Hoist
HVY.....Heavy Repairs
LKR.....Mechanics' Locker Room
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MW....Mechanics' Washroom
NCD.....New Car Display
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PNT.....Paint Booth or Preparatory
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SER.....Service Manager's Office
SPK.....Service Parking
STA.....Stationary and Records
UCD.....Used Car Display
W.....Women's Washroom
WSH....Wash Rack
WTG...Waiting Room

GENERAL MOTORS
USED CARS
QUALITY AUTO SALES
SERVICE ENTRANCE
TIRES
LUBRICATION
WASHING
EXIT

NO. 2 DEALERSHIP WITH GASOLINE STATION

PROBLEM

Here it is assumed that facilities are desired for a passenger car business including a gasoline station. The business is to be located in a town where buildings and store fronts are utilized as important elements in competing for attention.

The site is assured of heavy vehicular traffic because of its main street location. The heaviest flow of traffic passes the dealership late in the afternoon as the site is on the side of the street used by traffic that is outwardbound from the business district. High visibility to driver traffic is assured because the lot is on the far side of the intersection.

PERSPECTIVE

In developing a street elevation for this business, it is essential to divide the frontage between five operating departments.

Gasoline Station Display

The corner of the property is allocated to the gasoline station to capitalize on the natural advantages of the location for gasoline sales. The highway affords traffic volume. The station is on the side of the street used by homewardbound traffic. This provides peak accessibility to the traffic stream which is richest in gasoline purchasers. The street intersection enables traffic to see signs from a distance and maneuver into position to enter the station.

The prominence given gasoline sales is not permitted to interfere with automobile sales and service. Instead, the building is designed to display cars, parts and service to traffic attracted by the gasoline station.

New Car Display

The new car showroom is located and shaped so that its windows face both traffic streams on the main street and so that its displays are clearly visible to side street traffic and gasoline station customers. A long clear view of new car displays is assured by the width of the street intersection, the width of the gasoline station apron, and the angled setting of the show windows.

Used Car Display

The sign area of the building extends across the front of the used car lot to unify the design and to identify used car sales with new car sales. A narrow canopy provides a better atmosphere for displaying feature cars. The elevated stage provides a focal point of interest for the used car display.

Service Display

Attention is directed to service by signs that identify the entrance and the specialized tire, lubrication and washing stalls. Ease of access is provided by three curb cuts and a concrete apron that is used in common with the gasoline filling station.

Parts and Accessories Display

Signs and displays to advertise parts and accessories are visible to vehicular and pedestrian traffic moving along the main and side streets. Displays are located both in the main salesroom and in the gasoline station salesroom. These displays provide institutional advertising to highway traffic and suggest specific items to gasoline station customers and to floor traffic.

PLAN

New Car Department

The new car showroom is designed to present two cars as combined advertising and merchandising displays, and a third car as an exclusive merchandising display. The showroom is shaped so that cars face near side and far side traffic. The displays also are visible to gasoline station and to side street traffic.

Cars are brought into the showroom through triple doors leading from the service department. Parts and accessories display fixtures are portable so that an aisleway can be cleared for moving cars.

The sales manager's office and a sales office adjoin the new car showroom. The sales meeting room is on the mezzanine floor.

Used Car Department

Visibility of the used car displays is protected by the shape of the new car showroom and by the service exit drive. The display stalls are arranged so that a maximum number of cars face passing traffic. The forward row of cars is arranged so that each succeeding car is closer to the property line. This presents a more interesting and comprehensive view of the feature displays. Other cars are located in a circle facing the driveway. A used car shelter provides a waiting room for salesmen, a sales office and restroom facilities.

Service Department

The service entrance is approached easily from the main or side streets and from the gasoline station. The gasoline station aprons make it easily possible for customers to drive quickly from the public highway onto the dealer's property.

The reception stalls are located on the left side of the entrance aisle. They are placed at a convenient angle to permit even the most inexperienced driver to enter them without difficulty.

The quick service stalls are placed directly ahead of the reception stalls where they will suggest service needs to customers. The body department is located in a room at the far corner of the building so the noise can be confined. A paint spray room and a preparatory stall adjoin the body department. The front-end stall lies directly ahead of the entrance aisle so that its equipment is highly visible and its approach ramps cause little interference with internal traffic. Heavy repair stalls and the toolroom occupy another corner of the building. A brake stall is opposite the service reception stalls. Used car reconditioning and new car conditioning occupy the same section of the building.

The wash rack and lubrication stalls can be entered from the gasoline station apron or from inside the service department. The gasoline station stalls are separated from the service department stalls by rolling curtains. The lubrication stalls in the gasoline station and those in the service department abut each other so that the equipment in either location can be used to supplement that in the other when there is a rush of work.

The service manager's office is centrally located. The service control tower is on a mezzanine above the service manager's office and commands a clear view of reception and productive stalls.

Parts and Accessories Department

Sales of parts and accessories are promoted by a salesroom adjoining the new car showroom. Displays are located where they can be seen by street and showroom traffic and by gasoline station and service department customers. Parts and accessories also are displayed in the gasoline station salesroom which is operated more hours during each working day than main parts department. This arrangement makes parts available to owners and repairmen on Sundays and holidays when other departments of the business are closed.

Bin storage is convenient to the mechanic's counter and parts salesroom. Bulky parts are stored on the mezzanine, which is connected with the ground floor by a stair and by a chain hoist. Parts receiving and shipping is facilitated by access to an outside drive where trucks park while they are being loaded or unloaded.

Gasoline Station

This department is planned to operate both as a separate unit and as an integrated part of the larger business. The station possesses all of the facilities necessary for after-hour and seven-day-week operation. It can be shut off from the remainder of the building. When the main building is in operation the facilities of the service department and gasoline station are used interchangeably. Likewise, the parts sales facilities of each are supplementary to the other.

The gasoline station unit has its own restroom facilities. The women's restroom is accessible through an outside entrance. The men's restroom is reached through the gasoline station salesroom where male customers are exposed to advertising and merchandise displays.

Management and Personnel

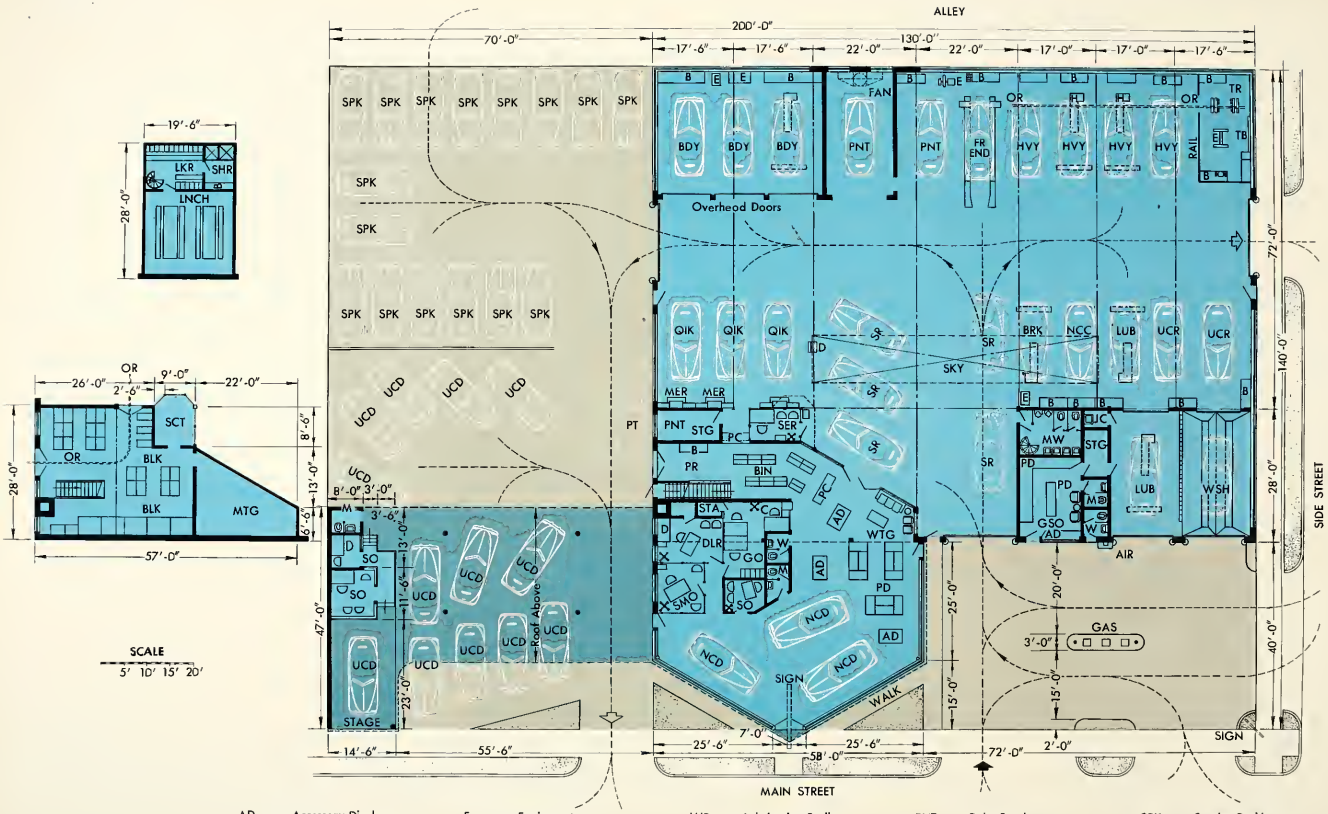
A dealer's office of moderate size is centrally located in relation to the new car, used car, and parts salesroom.

The location of the general office enables office employes to watch the parts and new car sales floors. Desk space within the general office is provided for the cashier who also performs other office duties.

SPACE ANALYSIS—PLAN NO. 2

Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(6%)	(5%)
Showroom	3		1024	1406
Sales Office			63	63
Used Car Department			(1%)	(20%)
Used Car Display	13	2300		5410
Sales Office			177	177
Service Department			(68%)	(57%)
Productive Stalls Avg. Floor Area per Stall 441 Sq. Ft.	25		11,020	11,535
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.6	16			4165
Service Rooms			288	288
Service Offices			164	164
Parts and Accessories Department			(13%)	(5%)
Parts Sales			770	770
Bin Storage			306	306
Bulky Storage			893	
Receiving and Stair			210	210
Management and Personnel			(10%)	(3%)
Offices & Meeting Room			851	565
Personnel Conveniences			828	282
Gas Station			(2%)	(10%)
Pumps & Driveways				2360
Office, Storage Room & Public Conveniences			386	386
TOTAL	57	2,300	16,980	28,000

Ground Floor—Main Building.....14,943
Mezzanines—Main Building..... 1,812
Used Car—Sales Building..... 225



AD.....Accessory Display
B.....Bench
BACK...Background
BDY.....Body Repairs
BIN.....Ports Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN....Exhaust Fan & Duct
FR END..Front End Stall
GO.....General Office
GSO...Gas Station Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG....Meeting Room
MW....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Ports Display
PNT....Paint Booth
PR.....Parts Receiving
PT.....Ports Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SHR....Shower Room
SKY....Skylight
SMO....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
STA.....Stationery and Records
STG....Storage Room
TB.....Tool Board
TR.....Tool Room
UCD....Used Car Display
UCR....Used Car Reconditioning
W.....Women's Washroom
WSH....Wash Rack
WTG....Waiting Room

GM Parts & Accessories
Quality Motors
Service Entrance
USED CARS

NO. 3 SOLUTION FOR NARROW INSIDE LOT

PROBLEM

In developing this design it is assumed that the dealership will be located in a small community where the new car sales potential is estimated at less than fifty vehicles per year. The market for used cars is considered to be twice the size of the new car market. The service market is assumed to be large and very competitive. The parts sales potential at wholesale and retail is regarded as average for the size of the territory.

The site selected is on the fringe of the main business section. It is an inside lot on the right side of the street to traffic flowing toward the business section. The lot is rectangular with a 70-foot frontage and 125-foot depth.

PERSPECTIVE

The location presents two design problems —first, how to increase the prominence of the dealer's business as a whole, and second, how to divide the frontage to give balanced emphasis to the four departments of the business—new car sales, used car sales, parts sales and service.

New Car Display

The new car showroom is placed at the most prominent position on the entire frontage because it both identifies the business and displays new cars.

The show windows are placed at an angle facing near side traffic. This keeps the display within traffic's field of vision for a longer time and minimizes interference from veiling glare and reflections. This provides more light and deeper penetration. Low bulkheads are used below windows so as not to obstruct the view of the car. Showroom doors and supporting pillars are placed where they do not restrict the view to street traffic.

The showroom interior is finished in light-colored materials to reflect light on the display and to contrast well with cars finished in darker tones.

Used Car Display

This activity is identified by signs at right angles to the traffic stream so they can be seen from two directions. A "special" used car display adjoins the sidewalk to attract attention and invite appraisal of other cars on the lot. A white fence behind the used car display gives a finished appearance to the lot, shuts off the view of the vacant lot beyond, acts as a background for the cars, and reflects light onto the displays.

Parts Display

Signs and a window display highlight the parts activity. Pedestrians and far-side motorists see the parts store interior through a large window. Near side traffic sees a shallow wall case featuring accessories and parts that can be sold by suggestion. The wall case repeats the color and treatment of the showroom, thus utilizing the merchandising advantages associated with the open or "visual" front.

Service Display

The service activity is given prominence by a sign over the entrance drive. The invitation to come in for service is strengthened further by the width and depth of the apron. The outside reception court permits customers to make preliminary negotiations for service without getting out of their cars or becoming involved with traffic inside the building. A wide canopy extending over the reception area provides weather protection to service employes and customers. The sale of "reminder" services, such as lubrication, washing, tune-up and others is promoted by signs below the canopy and opposite the doors to the service stalls.

Store Front Display

The shape of the building is dictated by the layout necessary to facilitate the activities of the business. The angles of buildings and signs expand the effective display frontage from 70 feet to 124 feet. Angling the store front increases the apparent size of the property and also places displays more directly within the line of vision.

The product sign is set at a right angle to both traffic streams. The dealership name is placed to directly associate it with the new car display and service signs.

PLAN

New Car Department

The new car showroom is designed for one car only because of the relatively small new car sales potential. The car is positioned to satisfy, as well as possible, the dual requirements of advertising and merchandising display. Emphasis is placed on advertising display to attract attention and to give identification to the dealership. The space is adequate for merchandising display.

The service drive is located to protect the view of the showroom and also to give service customers a clear view of new car displays.

The dealer acts as sales manager so his office adjoins the salesroom. The office is large enough to serve as a sales meeting room. No specialized offices for salesmen are required.

Used Car Department

Space is provided for the display of nine used cars. One specialized stall is arranged to face street traffic and attract attention. The other eight stalls are placed at an angle that provides good appearance from the street and facilitates demonstration.

The used car displays are seen by service customers as they leave their cars in the service reception court. Using the same drive for the service department and for the used car display keeps the average area per car at a minimum.

The dealer's office is located where his windows provide a view of activities on the used car lot.

Service Department

This plan provides service accommodations for 26 vehicles— 10 productive stalls within the building, and 16 stalls for reception and parking outside the building. Using an outside drive instead of an inside aisle reduces the average area per service stall and lowers the investment in the building.

Specialized stalls offering "reminder" services are grouped near the reception area where they are visible to customers at the time they are ordering service. The washing, paint and body stalls are placed at the rear, permitting activities that require replacement parts to be located closer to the parts department.

The service manager's office connects directly with the reception center and the shop.

Sanitary facilities for the mechanics, consisting of toilet, shower and locker rooms are located in convenient relation to the mechanics' parts counter. Tables and benches are provided within the locker room. It is not intended that the locker room will be used frequently as an eating place because mechanics generally go home to lunch in small communities.

Parts Department

The selling area in the parts department provides for six display tables and a service counter. An employe in the general office acts as cashier.

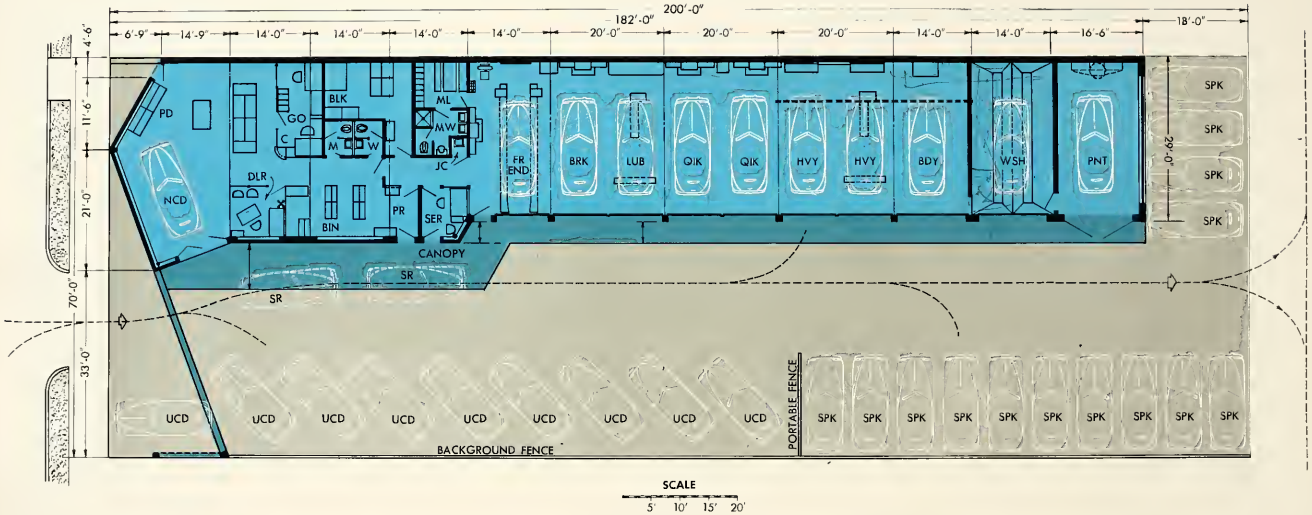
The stockroom provides space for 10 standard bins for small parts, plus an area nearly twice as large for bulky parts. The expected parts volume does not warrant allocating space to be used only for parts truck parking. Hence, the receiving entrance connects directly with the service drive where parts trucks can be loaded or unloaded. The "front-end" stall which adjoins the parts department may be used for parts loading during peak periods in service reception and in bad weather.

Management and Personnel

The general office is located near the dealer's office and selling areas. A cashier's counter is placed in the general office so this work can be combined with other office routine A janitor closet and toilet facilities for men and women are included in the design.

SPACE ANALYSIS—PLAN NO. 3

Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(8%)	(4%)
Showroom	1	408	498
Used Car Department			(24%)
Used Car Display	9		3390
Service Department		(65%)	(61%)
Productive Stalls Avg. Floor Area per Stall 344 sq. ft.	10	3437	4800
Parking Stalls Ratio of Parking to Prod. Stalls 1.6 : 1	16		3674
Service Offices		101	101
Parts Department		(16%)	(7%)
Parts Sales		324	396
Bin Storage		195	195
Bulky Storage		225	225
Receiving		98	98
Management and Personnel		(11%)	(4%)
Offices		332	332
Personnel Conveniences		291	291
TOTAL	36	5411	14000



BDY.....Body Repairs
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
DLR.....Dealer's Office
FR END..Front End Stall
GO.....General Office
HVY.....Heavy Repairs
JC.....Janitor's Closet
LUB.....Lubrication Stall
M.....Men's Washroom
ML.....Men's Locker Room
MW....Mechanics' Washroom
NCD....New Car Display
BIN.....Parts Bin Storage
PD.....Parts Display
PNT.....Paint Booth
PR.....Parts Receiving
QIK.....Quick Service
SER.....Service Manager's Office
SPK.....Service Parking
SR.....Service Reception
UCD....Used Car Display
W.....Women's Washroom
WSH....Wash Rack

GM
QUALITY MOTORS
GM
USED CARS
PARTS

NO. 4 CAPITALIZING ON A BUSY SIDE STREET

PROBLEM

This design is based on the assumption that the dealer desires to engage in a passenger car business of average size. The business is to be located in a warm climate in an outlying business section of a large city.

The site selected is a corner lot at the intersection of a main highway and a busy side street. The main highway carries a large volume of vehicular traffic and neighborhood stores draw considerable pedestrian traffic. The side street carries sufficient traffic to justify its use for display purposes.

The dealer's lot is on the right-hand side to main street traffic driving toward the central business district. This results in a heavy flow of vehicle traffic past the dealer's place of business in the morning. Morning traffic is particularly productive of service volume. Visibility favorable for display results from the location being on the far corner to main street traffic.

PERSPECTIVE

To utilize fully this dealer's resources, the design should cultivate side street traffic. This is accomplished by allocating side street frontage to used car sales.

New Car Display

The new car showroom is set back from the side street sufficiently to allow some main street frontage for the used car activity. Visibility of the new car showroom is enhanced rather than impaired by the setback which provides a longer viewing period to main street traffic. Moving side street traffic obtains a clearer view of the window displays because of the greater viewing distance.

The showroom is designed to display a side view of one car to the main street, and a front view of two cars to the side street. The show windows are arranged at right angles. This permits good car arrangements within the showroom and satisfactory visibility to the streets.

Used Car Display

Main and side street frontage is allocated to used car sales. The corner location provides exceptional exposure to traffic. The used car displays are set back far enough from the main street property line so as not to interfere with the visibility of the new car showroom. A canopy extends out from the main building to identify the used car activity and to associate it with the new car franchise. The building wall behind the used car display is designed and finished as an attractive background.

Service Display

The service entrance drive connects directly with the main street. A main street entrance is convenient to the morning traffic stream from which the dealer can expect to obtain the majority of his service business. Because a southern location is assumed, the entrance door will stand open much of the time so it is placed at the property line. In colder climates the door would be set back so customers could drive onto the dealer's property without delay.

Parts and Accessories Display

Attention is directed to the parts and accessories activities by a projecting eye-line window. The show window provides space for displaying products that may be sold by suggestion, and for some institutional advertising. The parts sales area does not adjoin street frontage so it is not possible to display the store interior.

Store Front Display

This building may be fabricated of metal, structural glass, or porcelain tile which are self-finished materials, or it may be constructed of common materials and painted.

PLAN

New Car Department

The new showroom is designed to accommodate two cars—the forward car to serve as a combination advertising and merchandising display, the rear car to serve principally as a merchandising display. An accessory display is arranged in the new car salesroom to feature the additional equipment desired by some customers.

Used Car Department

The used car stalls are planned so that two cars face the main street, and the remaining cars face the side street. In an operation of this size the dealer sells used cars, so his office is located where he can observe the sales lot.

Service Department

Entrance doors to this service department remain open most of the time so it is unnecessary to provide an apron to connect the public highway with the service entrance. Customers on entering are received in the aisle or in the stalls to the left of the aisle. The quick service activities are located near the service entrance. Heavy repairs, new car conditioning and used car reconditioning are done in the stalls beyond quick service. The front-end stall is angled in the corner where its additional length does not interfere with internal traffic movements. The lubrication stall is loaded and unloaded frequently so it is placed at the end of the aisle for easy access. The wash rack, body and paint stalls are grouped at the rear of the building.

Parts and Accessories Department

The parts department primarily supplies the dealer's service department. It sells some parts at wholesale but few at retail. Hence, the selling area is limited to space for a few display cases and a combination display and service counter. Bin storage is provided on the ground floor with bulky parts storage on the mezzanine. A stairway connects the main floor with the mezzanine. A chain hoist operating on an overhead rail provides for mechanical handling of heavy shipments.

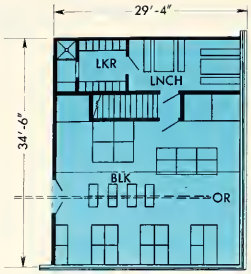
Management and Personnel

The dealer's office adjoins the general office and is convenient to the new car showroom and used car lot. The general office includes space for the cashier who also performs other office functions. The location of the cashier is convenient to both service and parts customers.

SPACE ANALYSIS—PLAN NO. 4

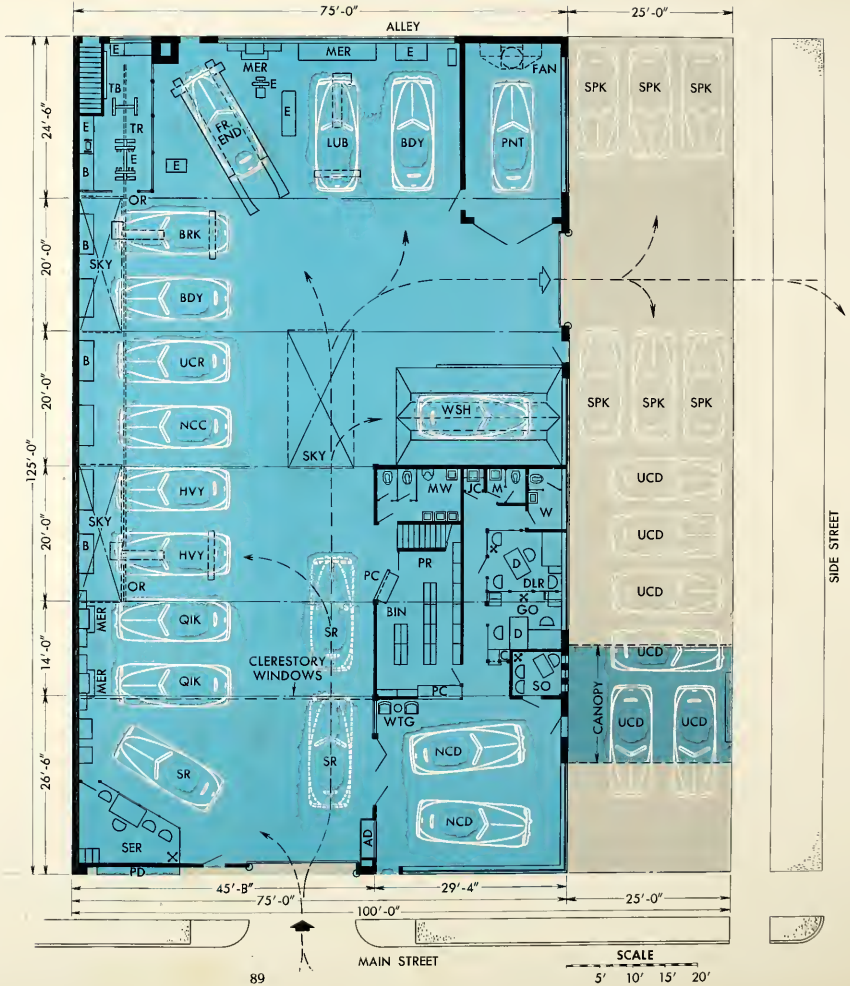
Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(8%)	(6%)
Showroom	2	752	752
Sales Office		63	63
Used Car Department			(13%)
Used Car Display	6		1587
Service Department		(73%)	(73%)
Productive Stalls Avg. Floor Area per Stall 449 Sq. Ft.	16	7189	7189
Parking Stalls Ratio of Parking to Prod. Stalls 1:2.7	6		1537
Service Rooms		228	228
Service Offices		176	176
Parts and Accessories Department		(11%)	(3%)
Parts Sales		40	40
Bin Storage		221	221
Bulky Storage		742	
Receiving and Stair		112	112
Management and Personnel		(8%)	(5%)
Offices		290	290
Personnel Conveniences		574	305
TOTAL	30	10,387	12,500

Ground Floor—Main Building..... 9,375 Sq. Ft.
Mezzanine—Main Building ..... 1,012 Sq. Ft.



MEZZANINE LAYOUT

AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN....Exhaust Fan
FR END..Front End Stall
GO.....General Office
H.....Hoist
HVY.....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MW.....Mechanics' Washroom
NCC.....New Car Conditioning
NCD.....New Car Display
PC.....Parts Counter
PD.....Parts Display
PNT.....Paint Booth
PR.....Parts Receiving
QIK.....Quick Service
SER.....Service Manager's Office
SHR.....Shower Stall
SKY.....Skylight
SO.....Soles Office
SPK.....Service Parking
SR.....Service Receptian
TB.....Tool Baard
TR.....Tool Roam
UCD....Used Car Display
UCR....Used Car Reconditioning
W.....Women's Washroom
WSH....Wash Rack
WTG...Waiting Room



GENERAL MOTORS
Quality Auto Sales
GM
GENERAL MOTORS
USED CARS
PARTS
ACCESSORIES
SERVICE

NO. 5 HIGHLY COMPETITIVE LOCATION

PROBLEM

It is assumed that this dealer wants to provide facilities for selling and servicing passenger cars and trucks.

The business is to be located in a growing suburban center where strong competition for customer attention justifies above average expenditure for buildings, store fronts and signs. The dealer is not only concerned with meeting present competition in store fronts, but with attaining a result that will not be eclipsed as new stores are erected.

The dealer's property is located on a main thoroughfare. Morning traffic passes the dealership on the far side of the street. The side street carries little traffic. A far corner location provides a long approach and high visibility to the main street.

A large volume of pedestrian and vehicular traffic is assumed, so displays are aimed at both sidewalk and highway traffic.

PERSPECTIVE

The main street elevation advertises the new car, used car and parts activities, while the side street elevation advertises service.

New Car Display

Signs, trim and a deeper color tone are used to make the new car showroom the focal point of interest. The showroom presents one car to highway traffic and two others to sidewalk and floor traffic. The showroom interior is free from distracting detail and heightens the visibility of cars by colors that provide contrast and brightness.

Used Car Display

The used car activity is featured by a pylon and sign which harmonize with the main building. The pylon is the same height as the mezzanine over the parts department. The bright trim edging of the canopy is at the same height as the trim over the parts store show windows. These features help to tie the used car lot in with the main building, and to associate used car sales with new car sales.

Parts and Accessories Display

A view of the parts store interior advertises the parts and accessories activity. Displays are planned to give the impression of a large and orderly stock to fast-moving highway traffic. Other displays present merchandise that can be sold to sidewalk and floor traffic by suggestion. The view of the parts sales room is protected by the open used car lot on one side, and the recessed entranceway on the other.

Service Display

The service activity is featured by a sign and entrance readily visible to vehicular traffic. The large plain background for the lettering on the sign increases its effectiveness. Finishing the building side wall in the same color and materials as the store front adds to the general impression of size, and draws attention to the business as a whole.

Store Front Display

Building and lot structures are unified by common characteristics in design, materials and color. The feeling of size is amplified by the use of the same color in different tones for all exterior surfaces. This simple color treatment sets the dealer's property apart from ordinary commercial scenes where small stores seek recognition by strong and varied colors.

Bright metal trim is used to attract and focus attention. The sign identifying the dealership can be lighted directly or by silhouette lighting. The product name and trademark is prominently displayed. Suitable signs identify the departmental activities of the business.

PLAN

New Car Department

The new car showroom is designed to display three cars. Its shape and dimensions provide for flexibility of arrangement. The entrance leads directly to a car on merchandising display. Cars are brought into the showroom through triple doors leading from the service department.

Offices for the sales manager and salesmen are readily accessible from the showroom. The showroom is visible to employes in the general office through a perforated screen which also displays the trademark.

Used Car Department

The lot is laid out to feature three cars to street traffic. Cars along the driveway likewise are arranged at a favorable viewing angle. The used car lot makes economical use of space since one driveway serves two rows of displays and also functions as a service driveway.

Service Department

A U-shaped aisle pattern in conjunction with the public street provides for a continuous flow of one-way traffic. The amount of non-productive area is kept small by an aisle arrangement that serves two rows of cars.

The reception stalls are arranged at a convenient angle on the left side of the entrance aisle. The quick service stalls adjoin the service reception area. They display signs and equipment to remind customers of service needs. The front-end stall located at the end of an aisle accommodates long trucks when necessary. A brake stall is included in the chassis grouping. Washing, body repair and paint stalls are grouped at the far corner of the building so noise, humidity and odors will not interfere with service merchandising. Aisles and driveways connect the parking stalls with the service department and the public street.

The stalls along the rear of the building are extra long to accommodate long vehicles and equipment. Two long repair stalls are provided for trucks. The front-end, brake, paint and wash stalls which require stationary enclosures or equipment also are of extra length.

The toolroom is located close to the heavy repair stalls. The service waiting room is near the cashier's window and adjoins displays of new cars, parts and accessories. The service manager's office is convenient to the manager's office and to the shop.

Parts and Accessories Department

The parts department consists of four basic areas: salesroom, bin storage, bulky storage and receiving.

The sales area is designed so that accessory tables can be located near the new car salesroom and building entrance. Thus impulse merchandise is shown to the most likely customers. Counter displays are arranged to attract the attention of parts department floor traffic.

Bin storage is convenient to the sales area and to the shop. The parts stock is arranged so the same personnel can wait on the shop mechanics and on the parts customers who come to the store. Storage for bulky parts is provided on the mezzanine above the parts store. The parts mezzanine is connected with the ground level by stairs and is equipped with a chain hoist for handling stock.

The parts receiving area adjoins the bin storage area and is directly below the bulky storage section. Two entrances are provided for parts receiving. Parts delivery trucks can be parked on the used car lot or in the corner lubrication stall while being loaded or unloaded.

Management and Personnel

The general office is located so that office employes can observe activities in the car and parts salesroom. The cashier is placed in the general office which is convenient to service customers, parts customers and the waiting room.

The dealer's office is located near the offices of the new car sales manager, service manager, office manager and general office.

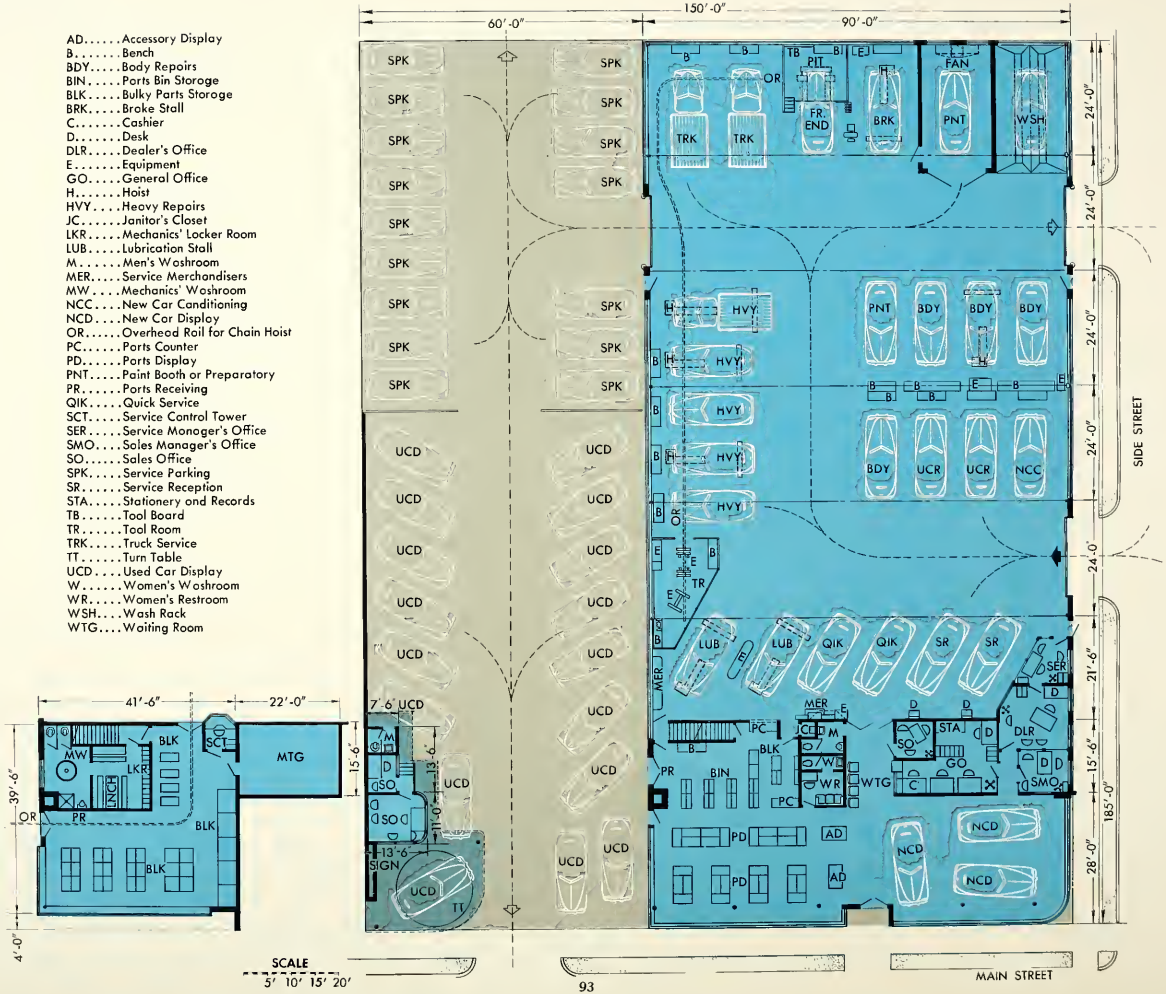
Washroom facilities are provided on the ground floor for both employes and customers. A janitor closet is located centrally to promote cleanliness and high standards of maintenance.

SPACE ANALYSIS—PLAN NO. 5

Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(7%)	(5%)
Showroom	3	1244	1287
Sales Office		64	64
Used Car Department		(1%)	(23%)
Used Car Display	17		6245
Sales Offices		198	198
Service Department		(67%)	(62%)
Productive Stalls Avg. Floor Area per Stall 490 Sq. Ft.	25	12,246	12,246
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.6	16		4641
Service Rooms		265	265
Service Offices		144	100
Parts and Accessories Department		(16%)	(6%)
Parts Sales		1061	1081
Bin Storage		424	424
Bulky Storage		1189	
Receiving		222	222
Management and Personnel		(9%)	(4%)
Offices and Meeting Room		978	637
Personnel Conveniences		772	340
TOTAL	61	18,807	27,750

Ground Floor—Main Building.....16,820
Mezzanine Floor—Main Building..... 1,987

AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
GO.....General Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MW....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PNT.....Paint Booth or Preparatory
PR.....Parts Receiving
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SMO....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
TRK.....Truck Service
TT.....Turn Table
UCD....Used Car Display
W.....Women's Washroom
WR.....Women's Restroom
WSH....Wash Rack
WTG....Waiting Room



USED CARS
SALES OFFICE
GM
PARTS ACCESSORIES
SERVICE
Quality Motors
GM
Quality Motors

NO. 6 INTERSECTION OF MAIN THOROUGHFARES

PROBLEM

It is assumed that this dealer desires to engage in the car and truck business on a large scale. The business is to be located in a large town where competition in all lines of business is very keen.

The site selected is a corner formed by the intersection of two important traffic arteries. The location is passed by a large volume of vehicular traffic but by only a moderate volume of pedestrian traffic. Hence displays should appeal to fast highway traffic. The dealer's site is on the near side to morning traffic on both the main and side streets. This affords an exceptional opportunity for service volume. The location is not well adapted to used car selling so only a small amount of land is to be acquired for that purpose.

PERSPECTIVE

All four operating departments of the business share in the main street frontage. New car sales and service are featured on the side street also.

New Car Display

The new car showroom is shaped to display cars to four traffic streams. Because the location provides highway traffic primarily, three cars are arranged as combined advertising and merchandising displays. The corner show window is aimed at near side traffic on the main street and at far side traffic on the side street. The other show window on the main street faces far side traffic. The show windows on the side street face near side traffic. The views of the three advertising displays are protected by the street intersection and by the two service drives which flank the showroom.

Used Car Display

Frontage for used car display is provided by setting the service department back from the main street property line. A canopy, pylons and the sales office draw attention to the used car display. An additional used car sales lot is provided away from the main building.

Service Display

Service entrances are located on both the main and side streets for peak accessibility to morning traffic. The entrances are set back from the property line to permit service customers to turn onto the dealer's property in safety. Large entrance doors are used to suggest easy maneuverability.

Parts and Accessories Display

The parts and accessories department is presented as a specialized activity within the dealer's business. The store interior is selected for the advertising display. The extent of the display suggests a large and varied inventory. The salesroom is shaped so that its interior is visible to both traffic streams. Display fixtures are arranged to suggest items to sidewalk traffic. A central door provides direct accessibility from the street.

Store Front Display

The main building is constructed of cement block. The bright metals used to finish the sign areas give unity to the design and emphasize the size of the building. The signs, as well as the door and window framing, are done in anodized metals. These materials have value for attracting attention of fast traffic and for meeting competition in store front advertising.

PLAN

New Car Department

The new car salesroom is designed to display four automobiles or three automobiles and one truck. Three cars are arranged as combined advertising and merchandising displays because of the dominant importance of highway traffic. Only one exclusive merchandising display is used. A customer waiting area is included in the new car salesroom. Display cars are brought into the showroom through inside doors.

The sales manager's office and salesmen's office are separated by a folding partition that can be withdrawn to form a sales meeting room.

Used Car Department

The used car lot is laid out to expose the front view of as many cars as possible to the main street. The cars can be demonstrated and returned to their positions on the lot easily. A used car sales shelter is provided as an extension to the main building. It includes a salesmen's room, sales office and toilet facilities. The shelter can be operated as an independent unit at times when the main plant is closed. It can be heated from the main plant.

Service Department

The approach aprons to the service entrance are long enough so that cars can be driven clear of the public thoroughfare while the service doors are being opened. Cars entering through either service door can make a convenient left-hand turn into stalls arranged diagonal to the service aisle. Employes who write repair orders can cover both reception centers easily.

The service department is patterned around an "I"-shaped aisle paralleling the main street. Used in conjunction with the alley and street it is possible to establish a continuous one-way movement.

Grouped around the reception centers are the quick service, lubrication, polish and brake stalls, all of which are high frequency operations that are salable by suggestion. The heavy repair stalls are located near the parts department and are connected to the toolroom by a chain hoist with overhead rail. The wash rack, body repair stalls, paint stalls and used car reconditioning are grouped at the far end of the building where they will cause minimum interference with sales and office activities.

The specialized stalls containing fixed equipment or enclosures are all built to dimensions sufficient to accommodate large trucks. These stalls, with the truck repair stalls, are grouped along one wall. Service parking is provided at rear of building.

The service manager's office and service control tower are located centrally in the building. The location is convenient to service reception and to the mechanics when they come to the parts department. It affords a good view of all shop activities.

Parts and Accessories Department

The parts department has the usual components—sales area, bin storage, bulky storage and receiving. In this business where parts and accessories are featured, considerable space is devoted to table and cabinet displays. The store interior is arranged for viewing by passing traffic. The bin storage area is located between the sales area and service shop so that the same employes can wait on both customers and mechanics.

Bulky storage is on a mezzanine above bin storage. Circulation between the mezzanine and the main floor is provided by stairs and an overhead rail with chain hoist.

The receiving entrance to the parts department is located on the exit aisle where there is light traffic during the day. Parts trucks can be loaded and unloaded without interfering with internal traffic.

The parts and service cashier is located in the parts salesroom. Service customers going to and from the cashier's desk are exposed to displays of accessories and parts.

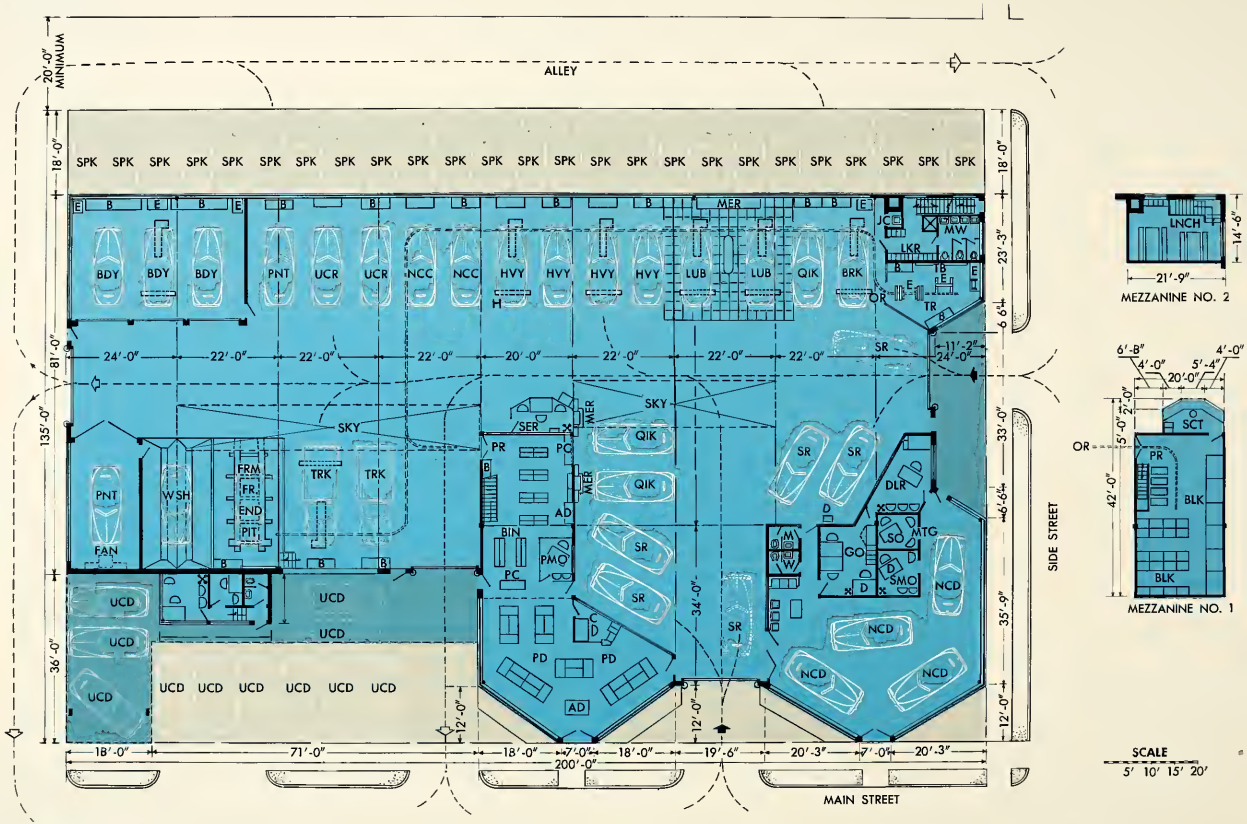
Management and Personnel

The dealer's office gives direct access to the new car salesroom, service department and general office. Activities in both sales and service departments can be observed from the dealer's office. General office employes can watch showroom activities and see that visitors receive prompt attention.

SPACE ANALYSIS—PLAN NO. 6

Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(8%)	(7%)
Showroom	3	1440	1855
Sales Offices		142	142
Used Car Department		(1%)	(11%)
Used Car Display	11		2688
Sales Offices		222	222
Service Department		(73%)	(71%)
Productive Stalls Avg. Floor Area per Stall 501 Sq. Ft.	29	14,525	15,288
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.2	25		3600
Service Rooms		264	264
Service Offices		164	82
Parts and Accessories Department		(11%)	(7%)
Parts Sales		906	1122
Bin Storage		473	473
Bulky Storage		700	
Receiving and Stair		170	170
Parts Office		67	67
Management and Personnel		(7%)	(4%)
Offices		421	421
Personnel Conveniences		914	606
TOTAL	68	20,408	27,000

Ground Floor—Main Building.....19,318 Sq. Ft.
Mezzanine Floor—Main Building..... 1,090 Sq. Ft.



AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN.....Exhaust Fan
FR END..Front End Stall
FRM.....Frame Stall
GO.....General Office
H.....Hoist
HVY.....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG.....Meeting Room
MW.....Mechanics' Washroom
NCC.....New Car Conditioning
NCD.....New Car Display
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PMO.....Parts Manager's Office
PNT.....Paint Booth
PR.....Parts Receiving
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SKY.....Skylight
SMO.....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
TRK.....Truck Service
TB.....Tool Board
TR.....Tool Room
UCD.....Used Car Display
UCR.....Used Car Reconditioning
W.....Women's Washroom
WSH.....Wash Rack
WTG.....Waiting Room

GENERAL MOTORS
GM
Quality Auto Sales
Quality Auto Sales
USED CARS
PARTS AND ACCESSORIES

NO. 7 SHALLOW LOT SOLUTION

PROBLEM

It is assumed this dealer has a new car sales potential of five hundred units annually. Convenience to public transportation creates an expectancy of substantial service volume.

The site is a corner lot at the intersection of a main highway and a minor side street. The highway carries heavy vehicular traffic which travels the far side of the street in the morning. Pedestrian traffic originates from the residential section.

The business is situated in an outlying district where buildings are new and store fronts are modern. Neighboring stores are characterized by wide fronts set flush with the building line. This is caused by the shallowness of the lots which are only 86 feet deep. The dealer has acquired extensive frontage to compensate for lack of depth but shallow lots present special problems in the layout of retail automobile dealerships.

PERSPECTIVE

On a street where store fronts are wide and appear to crowd the building line, there is a great opportunity for contrast.

New Car Display

The corner of the plot is assigned to the new car showroom because the intersection assures high visibility to motoring traffic.

The showroom has windows on four sides, providing good light distribution. Twelve-foot windows admit enough natural light for good daytime display.

The interior is treated simply to promote quick comprehension by fast traffic. A canopy at cornice height carries fixtures that indirectly illuminate the upper back wall. This dispels shadow and creates a more pleasant atmosphere. Light colored walls and ceiling improve daylighting and reduce the cost of nightlighting.

Used Car Display

A large pylon, that repeats the color scheme of the main building, attracts attention as a sign and acts as a terminal element for the property.

A small section of the used car lot is covered with a canopy which helps to associate the used car lot with the main building. The canopy also creates a focal point for displaying "specials."

Service Display

Signs advertising service are displayed prominently on the end of the building that faces morning traffic (not visible in illustration).

The service entrance is on the side street where morning traffic can approach by turning left at the street intersection. Ease of access is further indicated by an approach apron and two parking spaces outside the entrance.

Parts and Accessories Display

This salesroom is developed as a separate element projecting from the main building. Its windows furnish a view of the stockroom and customer service facilities. The show window set at right angles to the highway gives approaching traffic a longer view of the displays. An outside door provides direct access to the sales floor.

Accessories are highlighted in an eye-line case projecting from the wall.

Store Front Display

This building is designed to draw attention through contrast with its surroundings. A windowless second story provides a large wall area that is the dominant element in the design. Its solid vertical mass contrasts with the low horizontal lines and glass fronts of neighboring shops.

The front wall is set back from the building line. This emphasizes height and exposes a small plot of ground that is landscaped in harmony with the surrounding residential area. A set-back from the building line is an unusual feature on a street where lots are shallow.

Salesrooms for new cars and parts are designed like show cases that are inset into the solid mass of the building. Surrounded by windows and separated by landscaping, these salesrooms sharply contrast with other stores whose windows form a continuous wall of glass at the building line.

Continuity between the open and enclosed portions of the property is established by the trim used along the edge of the canopy and over the show windows.

The name of the dealership is prominently displayed on signs facing both streets and by the pylon. The product is identified by a lettered sign above the main building and by the product trademark which stands out boldly on the plain face of the building.

This building may be finished in a variety of materials such as natural or pre-cast stone, structural glass, porcelain on metal, or more common materials.

PLAN

In developing a layout for this plot there are two features of controlling importance. First, more than normal frontage is available on the main street and should be utilized. Second, the shallow depth of the lot raises problems as to how space can be divided to achieve efficiency without excessive building costs.

Sufficient frontage is available to provide sign and display space for all four departments of the business. The service entrance is located on the side street to provide easier access to the traffic stream which carries most service customers. The main street frontage is divided between new car, used car and parts displays.

Providing adequate space for the service department and new car showrooms is particularly difficult because the property is only 86 feet deep. After allowing 65 feet for the service department only 19 feet remain for a showroom. This depth does not accommodate specialized merchandising displays or allow for varying the arrangement of advertising displays. By setting the service department back from the side street it is possible to provide a showroom that is more pleasing in appearance and flexible in use.

New Car Department

The showroom is planned to exhibit three cars. Two cars are arranged for viewing by street traffic and floor traffic. The third car is a merchandising display for floor traffic. The showroom is located on the corner where it is exposed to the largest number of traffic streams. It is shaped to provide modified four-way exposure. This assures a good distribution of natural light and permits window settings that provide high visibility to highway traffic.

Used Car Department

The extensive frontage of the property is used to display ten cars facing the street, and seven additional cars arranged in a second row.

A salesmen's office forms an extension to the main building. The shelter commands a view of the entire used car lot.

Service Department

The service department is arranged along an "I"-shaped aisle which can be used in conjunction with the rear alley to provide a continuous one-way traffic flow. Service reception stalls are set on an angle at the left of the aisle. Quick service, lubrication and front-end stalls adjoin the reception area. The brake and polish stalls are also visible from the service reception center. This arrangement displays these services and facilitates the movement of cars.

The heavy repair stalls are located inside the service entrance to the right of the aisle. This reduces chances for congestion near the service entrance because there is light traffic in and out of these stalls.

The body repair stalls are at the far end of the building where noise does not interfere with service reception or sales activities in other departments. The paint spray booth is across the aisle and accessible from the body department. The wash rack adjoins the paint spray booth with a common wall separating both stalls.

Service parking is on the lot beyond the service exit. A driveway connects the parking stalls with the main street.

Parts and Accessories Department

The parts department is long and narrow. A section facing the street is used for advertising. Counter displays attract the attention of pedestrian and floor traffic. The remainder of the space is used as a stockroom, which is treated as a display to street traffic. Display and packing counters are near the entrance. A counter for mechanics is located centrally to the service department, and is nearest to the stalls where parts are used most frequently.

A receiving center provides space for piling stock and a bench for crating. Parking space for the parts delivery truck adjoins the receiving entrance, and is weather-protected by a canopy.

Management and Personnel

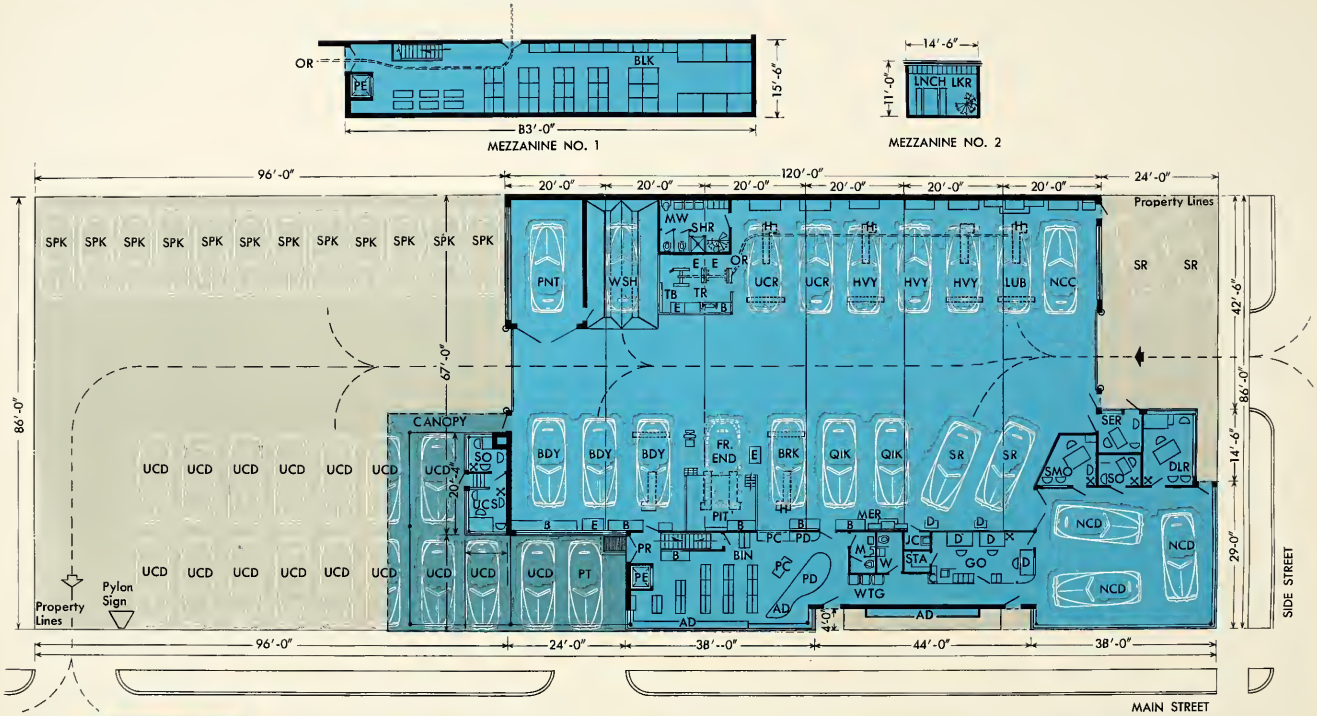
The dealer can observe incoming service traffic and activities in the new car salesroom from his office.

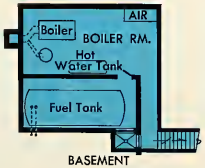
The general office, including the cashier's counter, is located between the new car and parts salesrooms, and adjoins the service department. Chair and table space is provided near the cashier's counter for the convenience of customers who wish to wait while service work is performed or while parts are being gathered.

SPACE ANALYSIS—PLAN NO. 7

Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(9%)	(6%)
Showroom	3		1055	1199
Sales Offices			60	60
Used Car Department			(1%)	(25%)
Used Car Display	17	3483		4903
Salesmen's Office			173	173
Service Department			(63%)	(60%)
Productive Stalls Avg. Floor Area per Stall 414 Sq. Ft.	18		7451	7451
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.3	14			4656
Service Rooms			168	168
Service Offices			81	81
Parts and Accessories Department			(17%)	(4%)
Parts Sales			290	372
Bin Storage			357	357
Bulky Storage			1286	
Receiving			170	170
Management & Personnel			(10%)	(5%)
Offices & Meeting Room			674	674
Personnel & Customer			528	376
TOTAL	52	3483	12,293	20,640

Ground Floor—Main Building.....10,855 Sq. Ft.
Mezzanines—Main Building..... 1,438 Sq. Ft.





SCALE 5' 10' 15' 20'

AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FR END..Front End Stall

GO.....General Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MW....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display

OR.....Overhead Rail Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PE.....Parts Elevator
PNT....Paint Booth
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SMO....Sales Manager's Office
SO.....Sales Office

SPK.....Service Parking
SR.....Service Reception
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
UCD....Used Car Display
UCR....Used Car Reconditioning
UCS....Used Car Salesmen's Shelter
W.....Women's Washroom
WSH....Wash Rack
WTG....Waiting Room

Quality Motors
GM
GM TRUCKS
TRUCKS
SERVICE
TRACTOR TRAILERS

NO. 8 EXCLUSIVE TRUCK DEALERSHIP

PERSPECTIVE

Requirements foremost in the minds of commercial vehicle users are *dependability, good appearance* and *prompt service*. Hence, it is reasoned that truck users can be favorably impressed by a building which is rugged in appearance and in which service facilities are a focal point of interest. The nature of the product and the speed of highway traffic suggests that mass rather than detailed elevation features should be used to arouse interest.

New Truck Display

Attention is directed to the new truck showroom by setting portions of the building back from the property line. This makes the showroom visible for a greater distance and from a better viewing angle. Display trucks are arranged for viewing by highway traffic. The showroom is shaped so that its windows face traffic streams on both sides of the highway. The showroom interior is finished in light colors to contrast well with truck colors.

Used Truck Display

The used truck activity is featured by a small canopy that carries signs and lighting to attract attention. Two feature truck displays face the street while others are seen in the background.

PROBLEM

It is assumed that this dealer wishes to make available facilities needed for an exclusive truck franchise. The business is to be located on an important truck route. This creates an expectancy of quick service volume on tractor-trailer units. State laws allow truck lengths up to 55′0″, hence, facilities are needed for servicing long units.

Land is acquired on the side of the highway used by traffic going toward the central business district. This increases the possibilities for rendering emergency service to through traffic. The location also is convenient to traffic that terminates in the business district. The site chosen is an inside lot.

Service Display

An elevated service office forms the focal point of the entire display. Its splayed windows provide a note of novelty. Landscaping around the base creates another note of interest. The product trademark and the "service" sign provide identification and emphasis. The outside exposure of the service tower invites customers to drive in and make preliminary arrangements for service work.

Safe and easy maneuverability is suggested by wide aprons between the highway and the service entrances. Trucks and tractor-trailers can drive completely off the highway when stopping for service. Quick adjustments can be performed on the slab without taking trucks inside.

Large entrance doors emphasize easy maneuverability. To further advance the impression of space and maneuverability, the pattern of the vehicle door is repeated in the window and in the pedestrian door adjoining the "truck" entrance.

Store Front Display

Philadelphia ledgestone is the material selected for the sign area, as it conveys the impression of strength and durability along with beauty. Cinder block forms the main structure of the building. The various elements of the building are united by maintaining the same height for the used truck canopy, new car showroom roof line, "truck" entrance door, and the canopy over the service tower and tractor-trailer stalls.

The signs can be executed in free-standing letters superimposed in front of the stone work. Indirect illumination can be concealed in the back of the letters. Lights can be placed on top of the showroom and service tower to floodlight the sign area and give the building an impressive and rugged appearance at night.

PLAN

The layout of this exclusive truck property makes provisions for four operating departments—new trucks, used trucks, parts sales and service, and the facilities needed for the management and administration of the business.

New Truck Department

The showroom is designed primarily to advertise the truck activity to highway traffic. It provides space for two displays that perform both advertising and merchandising functions. It is shaped so that its windows face the approaching highway traffic. This makes displays visible for a greater distance and minimizes veiling glare, which in turn, attracts a larger and more interested audience.

In the truck business most of the actual selling takes place at the buyer's place of business or residence. Also, many trucks are assembled on special order to meet specific requirements. Hence, showroom facilities are not provided for displaying a variety of models. One sales office is planned in addition to the manager's office.

Used Truck Department

The used truck activity is advertised by two displays facing the main street. Additional used trucks are displayed along the side drive.

The used truck sales office is incorporated in the main building. It is accessible from the display lot. A sales shelter complete with heating facilities and toilet is regarded as unnecessary since used truck sales are made during business hours when the entire building is in operation.

Service Department

In planning the layout of the service department, consideration is given to the fact that trucks of short to medium length constitute a high percentage of the dealer's potential. The space for servicing trucks of ordinary length is provided by two rows of stalls arranged at right angles to a central vehicle aisle. The heavy repair stalls adjoin the unit repair shop.

Drive-through stalls 60′0″ long are provided to furnish quick service for tractors and trailers (without uncoupling), and to service extra long single unit trucks. Front-end equipment is placed at the head of one stall so front-end mechanisms can be adjusted with trailer attached and under average operating loads.

The paint spray room and the wash rack are separated by a rolling curtain so that the stalls may be used either separately or in combination.

A unit repair shop, equipped with specialized machines, is provided for reconditioning major and minor assemblies after they have been removed from the vehicles.

The service office is located centrally. It overlooks activities located within the building. With the aid of a loud speaker system, the service manager or an attendant can direct trucks coming onto the slab to the proper stall or entrance.

Parts and Accessories Department

The parts sales area adjoins the new truck showroom. Accessory display tables are located within the showroom area. Parts displays are in the background but are clearly visible to showroom traffic. Bin storage and bulky storage are provided on the ground floor.

A parts window opens directly into the unit repair shop where replacement parts are used in volume.

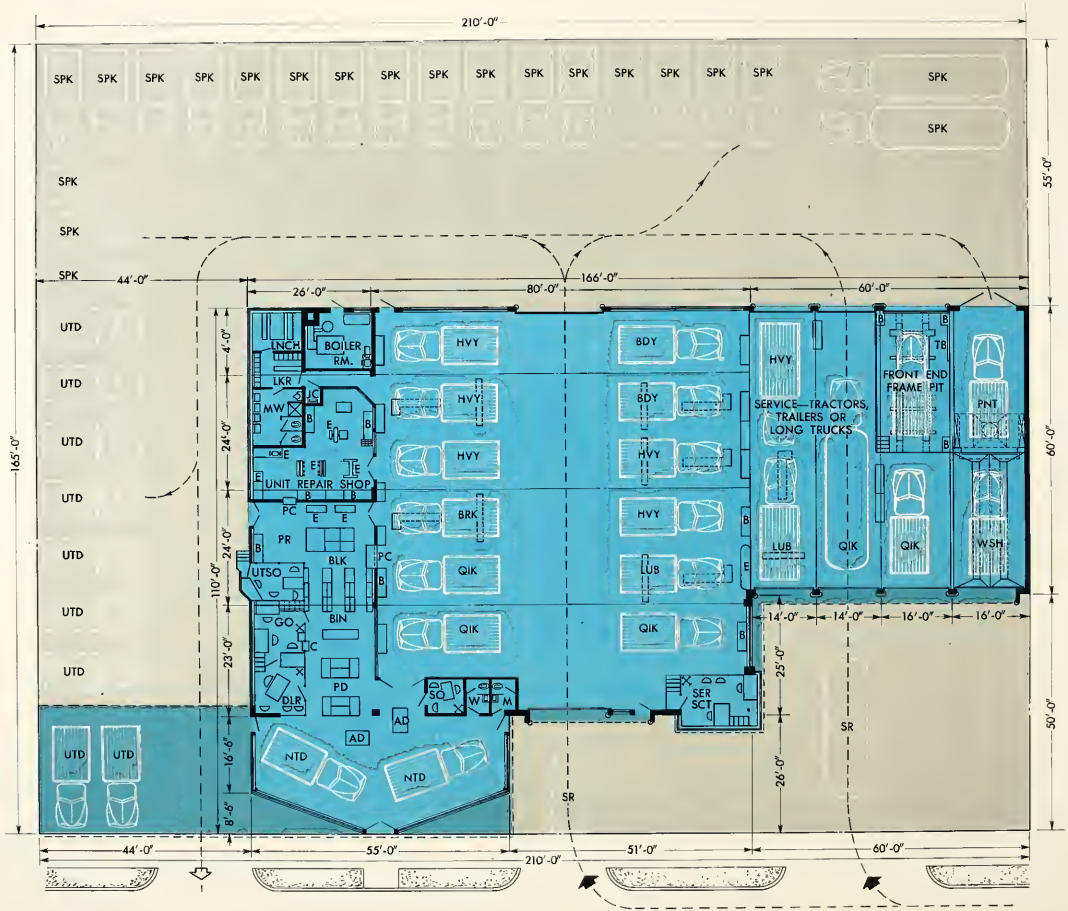
Another parts counter is convenient to mechanics working in the service stalls. The receiving area adjoins the bin and bulky storage areas. An outside door connects the parts receiving area with parking space for delivery trucks. There is space inside the entrance for piling incoming and outgoing shipments. An overhead rail system connects the receiving center with storage areas, service stalls and the unit repair shop.

Management and Personnel

The manager of this agency acts as the new truck sales manager. Consequently, his office is located to adjoin the new truck salesroom. The manager's office overlooks the salesrooms for new trucks and parts, and also the general office. Lunch room, locker and shower facilities are provided for the dealer's mechanics.

SPACE ANALYSIS—PLAN NO. 8

Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Truck Department			(9%)	(5%)
Showroom	2	473	1123	1861
Sales Office			66	66
Used Truck Department			(1%)	(11%)
Used Truck Display	2	898		898
Open	7			2760
Used Truck Sls. Office			104	114
Service Department			(77%)	(78%)
Productive Stalls Avg. Floor Area per Stall 526 Sq. Ft.	19		10007	16965
Parking Stalls Ratio of Parking to Prod. Stalls 1.2:1	23			9406
Unit Repair Shop			472	472
Service Offices			230	230
Parts and Accessories Department			(7%)	(3%)
Parts Sales			339	339
Bin Storage			169	169
Bulky Storage			254	254
Receiving			156	156
Management and Personnel			(7%)	(3%)
Offices			319	319
Personnel Conveniences			446	446
Boiler Room			195	195
TOTAL	53	1371	13,880	34,650



AD.....Accessory Display
B.....Bench
BIN.....Parts Bin Storage
BDY.....Body Repairs
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
DLR.....Dealer's Office
E.....Equipment
FR END..Front End Stall
FRM.....Frame Stall
GO.....General Office
HVY.....Heavy Repairs
JC.....Janitor's Closet
LKR.....Men's Locker Room
LNCH...Mechanics' Lunch Room
LUB.....Lubrication Stall
M.....Men's Washroom
MW....Mechanics' Washroom
NTD.....New Truck Display
PC.....Parts Counter
PD.....Parts Display
PNT.....Paint Booth
PR.....Parts Receiving
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
TB.....Tool Board
UTD.....Used Truck Display
UTSD....Used Truck Sales Office
W.....Women's Washroom
WSH....Wash Rack

SCALE
5' 10' 15' 20'

GM
QUALITY MOTORS
Service
PARTS & ACCESSORIES

NO. 9 ON THE FRINGE OF A BUSINESS DISTRICT

PERSPECTIVE

New Car Display

Since this dealership has good exposure to vehicular and pedestrian traffic, it is thought that the new car showroom may well be divided into two sections, one to draw the attention of fast-moving traffic, the other to attract pedestrian and floor traffic.

To get the attention of highway traffic one car will be displayed dramatically. This new car display therefore is located just beyond the service entrance set-back to assure a long unobstructed view to approaching traffic. It is planned that the car will be mounted on a turntable to give movement to the display so the showroom is shaped for the use of such equipment. A curved show window follows the general design. The sign area above the window is of similar shape and extends above the parapet of the building to draw and center attention. The display background follows a similar curve and is constructed of materials like those used for the exterior sign. This creates a feeling of continuity between the exterior and interior of the display.

The other section of the showroom is located where its displays are clearly visible to pedestrian traffic. Its advertising display is visible to far side vehicular traffic. This section of the showroom also presents two merchandising displays to floor traffic.

PROBLEM

It is assumed this business will be located in a large metropolitan center on the fringe of the central business section where the land values are relatively high.

The business section is regarded as excellent for new car and truck sales, parts sales and service, but not for used car sales because of land values and type of traffic. Used car selling, therefore, will be conducted from a location more adaptable to the activity.

The dealer's site is on a main thoroughfare which gives assurance of a heavy volume of vehicular traffic. The location also affords some pedestrian traffic as people walk to and from parking lots and stores in the vicinity. The dealer's lots are within the block and lack the advantages of a corner location for displaying to highway traffic.

Store front competition is moderate in the area where the dealership is located but the metropolitan setting requires the use of attention getters.

Service Display

The service entrance is designed with a deep approach apron and a wide door to attract favorable attention. A service office at the entrance suggests that customers will be seen and admitted promptly.

The service exit is set back to give departing customers a clear view of the public thoroughfare before entering it. This setback also provides increased visibility for the car and parts displays.

Parts and Accessories Display

This activity is featured by an eye-line window that can be used to display representative parts and accessories that can be sold by suggestion. This element balances the service office at the other end of the building.

Store Front Display

The specialized elements of the business are associated through common design features and a continuity of materials and color scheme in the store front. Glazed tile is used in forming the exterior of the building. Structural glass or enameled metal panels would also be effective. Bright metal is used for the trim, doors and principal sign area. Maroon is used for lettering and as a color for the bulkhead.

PLAN

New Car Department

The new car sales department consists of a new car showroom, sales manager's office, sales office and a sales meeting room.

The showroom provides space for the display of four cars, one as an advertising display, two as merchandising displays, and the other combining both functions. The showroom is located between the service aprons to protect visibility. It is shaped to admit natural light from three directions. A central door admits pedestrian traffic. Cars are brought into the showroom from the service department.

The sales manager's office and two sales offices adjoin the showroom. The sales meeting room is located on the mezzanine.

Service Department

The service department is arranged around a U-shaped aisle. Traffic flow is counterclockwise. All aisles serve two rows of stalls. This makes for a high ratio of productive to non-productive space.

The main portion of the building is designed for passenger cars and trucks up to 10′6″ tall. Door and truss heights in the rear portion of the building are designed to accommodate trucks up to 12′6″ tall. Specialized stalls containing fixed equipment and enclosures are dimensioned for tall trucks and are located in the rear portion of the building.

The reception stalls are arranged on both sides of the aisle immediately inside the entrance. Stalls for lubrication, front-end, brake and quick service work are grouped near the reception area to display their equipment and to suggest to customers these frequently needed services. Heavy repair stalls are grouped along the rear of the building. Used car reconditioning, washing, body work and painting stalls are located along the side of the building that is farthest from the reception area.

The toolroom adjoins the heavy repair stalls. A chain hoist operating on an overhead rail provides for mechanical handling of assemblies. The service control tower projects from the mezzanine to give the dispatcher a clear view of both sides of the shop. One portion of the service control tower faces the reception stalls so the operator can direct the scheduling of work. Office space for service manager and clerk are provided on the main floor.

Parts and Accessories Department

The sales area of the parts department consists of an enclosed show window and space suitable for open table displays in the area adjoining the new car showroom and waiting room. The parts and service cashier is located where service traffic will be exposed to parts advertising and displays.

The parts stockroom is located centrally in the building. Parts counters are located on both sides of the stockroom to save the time of mechanics.

Bulky parts are stored on the mezzanine above the bin storage area. Access to the mezzanine is provided by a stairway and parts elevator. A chain hoist operating on an overhead rail provides for mechanical handling of shipments.

Receiving centers are located adjacent to storage areas on the ground floor and on the mezzanine. The door opening into the receiving center gives direct access to the loading stalls for parts trucks.

Management and Personnel

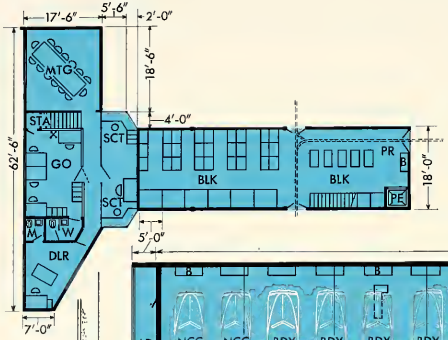
The dealer's office is located on the mezzanine overlooking both the new car salesroom and the service area. The general office adjoins the dealer's office. Placing offices on the mezzanine provides more ground floor space for sales activities.

SPACE ANALYSIS—PLAN NO. 9

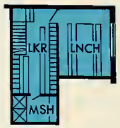
Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(7%)	(6%)
Showroom	4	1671	1978
Sales Offices		153	153
Service Department		(74%)	(86%)
Productive Stalls Avg. Floor Area per Stall 460 Sq. Ft.	41	18,868	19,175
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.2	34	672	9168
Service Rooms		234	234
Service Offices		543	347
Parts and Accessories Department		(10%)	(5%)
Parts Sales		740	740
Bin Storage		504	504
Bulky Storage		1077	
Receiving		396	396
Parts Office		72	72
Management and Personnel		(9%)	(3%)
Offices and Meeting Room		1409	403
Personnel Conveniences		1176	580
TOTAL	79	27,515	33,750

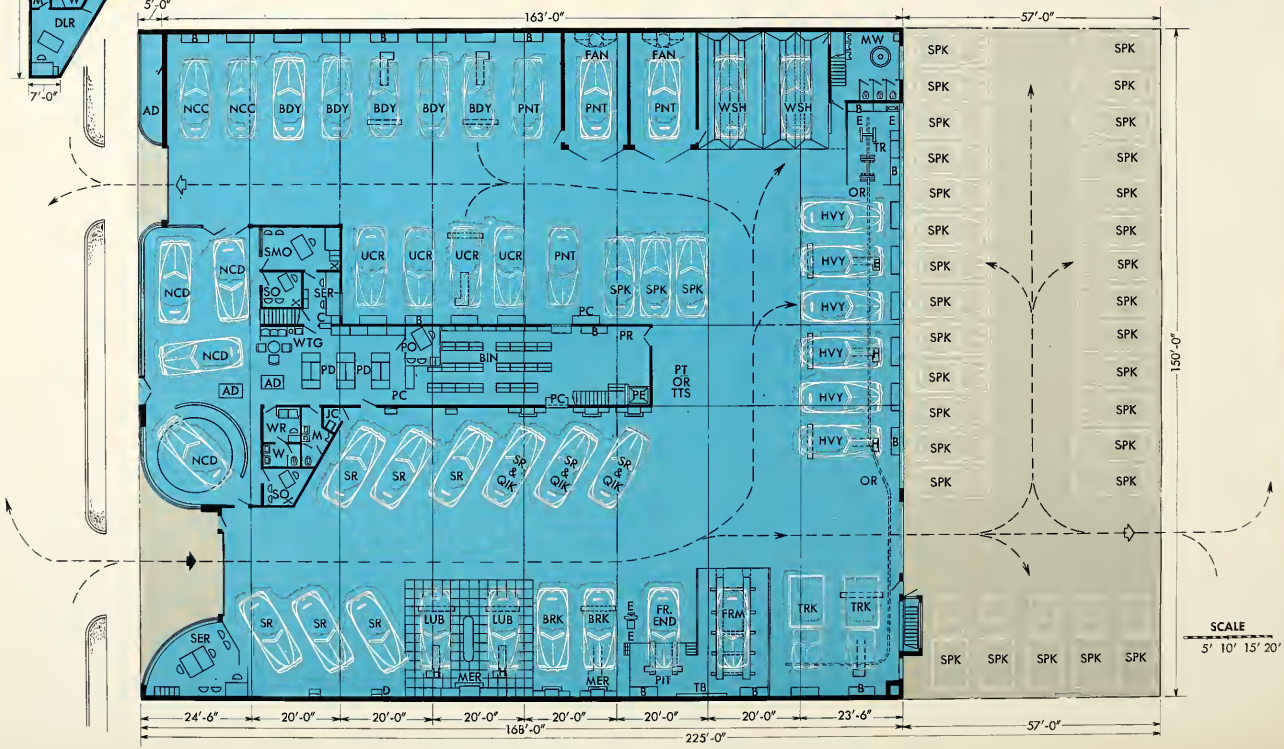
Ground Floor—Main Building.....24,640 Sq. Ft.
Mezzanines—Main Building..... 2,875 Sq. Ft.

PLAN NO. 9 PAGE 4



AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN.....Exhaust Fan
FR END..Front End Stall
FRM.....Frame Service
GO.....General Office
H.....Hoist
HVY.....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG....Meeting Room
MW.....Mechanics' Washroom
MSH....Mechanics' Showers
NCD.....New Car Display
NCC.....New Car Conditioning
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PE.....Parts Elevator
PNT.....Paint Booth
PO.....Parts Office
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SMO....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
TRK.....Truck Service
TTS.....Tractor Trailer Service
UCR.....Used Car Reconditioning
W.....Women's Washroom
WR.....Women's Restroom
WSH....Wash Rack
WTG....Waiting Room





Quality
GM
GENERAL MOTORS
Motors
CARS
Quality Motors
PARTS ACCESSORIES
USED CARS

NO. 10 AT A TRUCK ROUTE INTERSECTION

PROBLEM

It is assumed that this dealer desires to provide the facilities needed to engage in car sales and service, truck sales and service, and gasoline sales.

The dealer plans to operate the gasoline sales unit twenty-four hours a day, seven days a week. The new car showroom and the used car lot are to operate both days and evenings. Car service is to operate forty-four hours per week and truck service ninety hours per week. Because of the different operating schedules, the various units need to be planned so they can be operated independently.

The dealership is located on the outskirts of a small city at the intersection of two trunk highways. The traffic expectancy of the location is primarily vehicular. Both highways are interurban truck routes and carry a substantial volume of trucks and tractor-trailers. The dealer particularly wants to attract this business.

The dealer's site is on the side of the road used by traffic going toward the city. It is a far corner location.

PERSPECTIVE

In planning the elevation of this dealership it is necessary to provide advertising display for five operating departments.

Gasoline Station Display

For reasons of accessibility corner land is allocated to gasoline sales. Easy access is made apparent by the wide aprons surrounding the pump islands. The use of the corner for a filling station is justified by the gasoline sales potential and by advertising advantages. The far corner is favored by gasoline companies because it provides distance viewing and enables customers to get in position to turn in. The station unit contains the usual washing and lubrication stalls and also a third stall to accommodate long trucks and tractor-trailer units.

New Car and Truck Display

The salesroom for new cars and trucks projects out from the main building, giving it, in effect, the prominence of a corner location. The showroom is located for visibility to traffic on both highways, and to service and gasoline station customers. It is shaped for high visibility to both near-side and far-side traffic.

Service Display

The service entrance is directly below the sign which is the central point of interest. Service is featured by a covered reception court wide enough for four vehicles to enter without any feeling of close clearances. The service office adjoining the reception court suggests prompt attention. Wide aprons with curb cuts on both streets demonstrate accessibility. A sign worded "Complete Service" is placed on the filling station unit to acquaint customers with the availability of broad service facilities.

Parts and Accessories Display

This salesroom shares the advantages of a corner location. Display windows face traffic streams on both highways, and also are clearly visible to gasoline station traffic. Being located in the gasoline station, the display of the parts store interior is in continuous operation. A prominent sign also faces the main street.

Used Car and Truck Display

These displays are arranged to face both highways. The set-back that provides accessibility to the gasoline pumps also provides frontage for featuring three used vehicles to main street traffic. Additional used vehicles face the side street. A canopy with signs and lighting draws attention to the used car display. A sales office adjoins the used car display.

Store Front Display

Although this dealer's property consists of two separate buildings joined only by a roof, the front elevation is designed to appear as one unit. The two units are styled in substantially the same manner, with projecting display windows topped with free-standing signs that can be illuminated indirectly. Both buildings are finished in like materials and color. A prominent sign element serves as a central focal point for the business and unites the two units. The sign can be floodlighted making it as effective at night as in the daytime.

PLAN

Gasoline sales, over-the-counter parts sales, truck service and used car sales all lend themselves to being operated extra hours and seven days a week. Hence, they are housed in a separate unit.

Gasoline Station Unit

Two pump islands are planned for the gasoline station so that traffic on either highway can stop for gasoline and return directly to the same traffic stream.

The lubrication stall and wash rack accommodate medium length trucks. A long stall is included to provide quick service for tractor-trailer units without uncoupling. Doors at each end of the stall enable trucks to enter and leave without reversing direction.

A lounge, lavatory and three bedrooms for truck drivers occupy the mezzanine floor of the gasoline station. Truckers can rest comfortably while repairs are in progress, or while they wait for the shop to open.

The showroom of the gasoline station is planned for the display of accessories and fast-moving parts. The displays are visible from the pump islands and the attendant's desk. Bulky storage for tires, oils and anti-freeze is provided on the mezzanine.

New Car and Truck Department

Two cars always can be arranged for high visibility to fast highway traffic and customers of the gasoline station and service department. The view of the salesroom is protected by the gasoline station aprons, and a set-back from the building line.

Used Car and Truck Department

Used cars are displayed to traffic on the main and secondary highways. Used trucks are displayed along the driveway leading to the side street. The lot is planned to provide ample freedom for demonstrating cars and trucks.

Service Department

The service department consists of four units—a reception court, car unit, truck unit and parking unit.

The reception court is under a canopy that provides weather protection. Simple repair orders are written in the court. More difficult orders are prepared in the building after tests. A shelter for service attendants adjoins the reception court.

Cars to be worked on immediately are routed into productive stalls. Others are driven directly to the parking lot. Movement from service reception is always forward. This eliminates confusion from backing as customers are driving in.

The truck service stalls are approached from an outside drive. Two specialized stalls for painting and frame straightening also are used for passenger cars.

Parts Department

The main building provides an accessories display in the waiting room. Small fast-moving parts are stored in bins on the main floor. Bulky parts are stored on the mezzanine. The receiving section adjoins truck parking space.

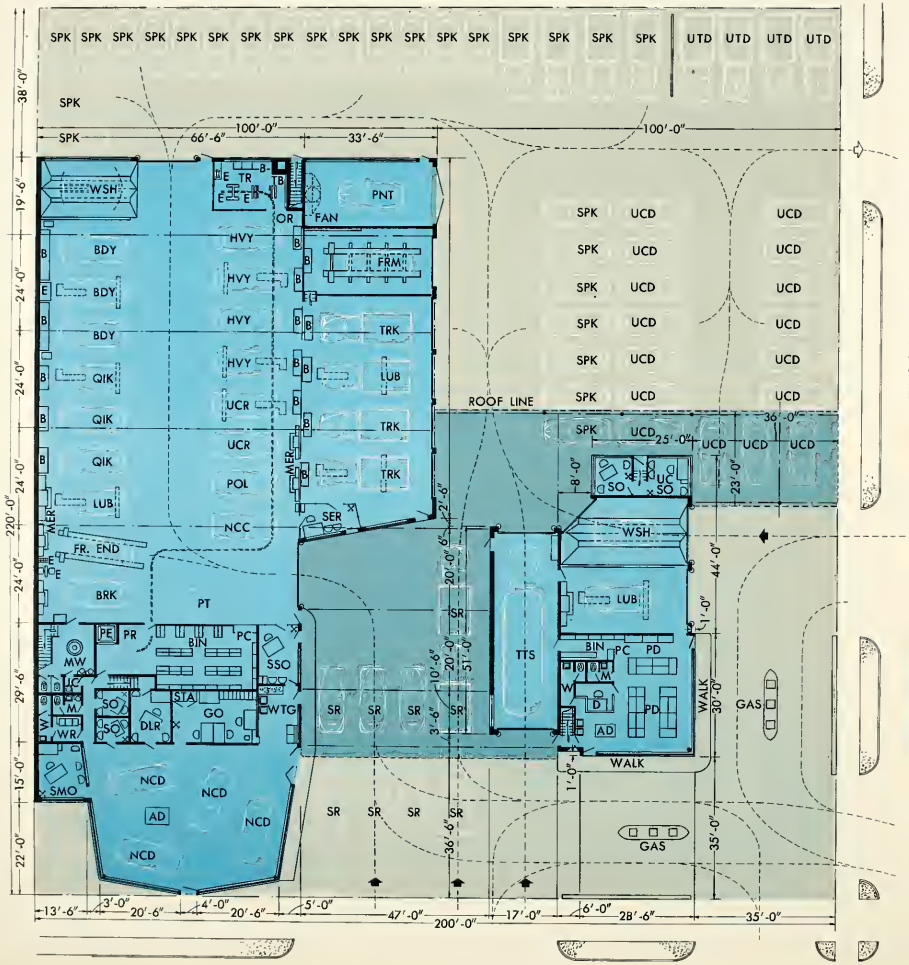
Management and Personnel

The general office, including the cashier's counter space, adjoins the new car showroom. The cashier's desk is convenient to the waiting room which serves both the new car and service departments.

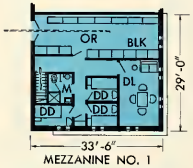
SPACE ANALYSIS—PLAN NO. 10

Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(9%)	(5%)
Showroom	4		1750	2257
Sales Offices			137	137
Used Car Department			(1%)	(19%)
Used Car Display Under Canopy	4	1093		1093
Open	22			7159
Used Car Sales Offices			250	250
Service Department			(62%)	(59%)
Productive Stalls Avg. Floor Area per Stall 458 Sq. Ft.	27		12363	14990
Parking Stalls	6	3755		3755
Open Ratio of Parking to Prod. Stalls 1.1:1	24			6583
Service Rooms			231	231
Service Offices			330	285
Parts and Accessories Department			(14%)	(5%)
Parts Sales			635	1202
Bin Storage			530	510
Bulky Storage			1564	
Receiving	1		255	255
Management and Personnel			(9%)	(3%)
Offices			612	612
Meeting Room			308	
Personnel & Customer Conveniences			1041	601
Gas Station			(4%)	(9%)
Pump Area & Driveways				3804
Attendant's Office			138	138
Personnel & Customer Conveniences			741	138
TOTAL	88	4848	20,885	44,000

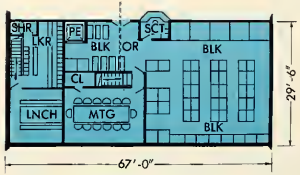
Ground Floor—Main Building—17,923 Sq. Ft.
Mezzanines—Main Building—2,962 Sq. Ft.



AD.....Accessory Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
CL.....Closet
D.....Desk
DD.....Driver's Dormitory
DL.....Driver's Lounge
DLR.....Dealer's Office
E.....Equipment
FAN....Exhaust Fan
FR END..Front End Stall
FRM....Frame Service
GAS....Gas Pump Island
GO.....General Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER....Service Merchandisers
MTG....Meeting Room
MW.....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display
OR.....Overhead Rail Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PE.....Parts Elevator
PNT.....Paint Booth
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SHR.....Shower
SMO....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
SSO....Service Salesmen's Office
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
TRK.....Truck Service
TTS.....Tractor Trailer Service
UCD....Used Car Display
UCR....Used Car Reconditioning
UTD.....Used Truck Display
W.....Women's Washroom
WR.....Women's Restroom
WSH....Wash Rack
WTG....Waiting Room



MEZZANINE NO. 1



MEZZANINE NO. 2

SCALE

5' 10' 15' 20'

GM
QUALITY MOTORS
USED CARS
QUALITY MOTORS
SERVICE
LUBRICATION
WASHING
TRAILERS
GM PARTS
EXIT

NO. 11 EMPHASIS ON SERVICE

PERSPECTIVE

New Car Display

The new car showroom is located where it is visible to highway traffic for a long distance, and consequently, for a long time. It is shaped to face approaching vehicular traffic and to provide clear visibility to pedestrian traffic. Two cars are arranged as advertising displays.

Used Car Display

The used car activity is given prominence by a background which repeats in form and color the main sign element. The canopy suggests attention to customer comfort.

Service Display

Three wide approaches connect the service entrance with the main or side streets. The entrance is identified by a sign visible to main street traffic. The door is wide and high. It contains large glass areas that give it an "open" appearance.

Lubrication and washing stalls are entered from the gasoline station apron. Signs advertise these specialized services. The tractor-trailer entrance is angled toward the traffic stream coming into the city, which is the direction from which most tractor-trailer work is expected. The drive-through stall can be entered without maneuvering or uncoupling.

PROBLEM

Here it is assumed that the dealer owns land on a highway within a small city. The highway carries substantial car and truck traffic with some interurban tractor-trailer traffic. The land is on the near side to traffic outbound from the business district. It is on a far corner affording high visibility.

The dealer desires to capitalize on the advantages of his location. He wants to provide the facilities normally required for selling and servicing cars and trucks, and in addition, the facilities needed for gasoline sales and tractor-trailer service.

The property is well located for gasoline sales since it is on the near side of the street to homewardbound traffic which makes the largest purchases of gasoline. But the property is on the far side of the street to morning traffic which buys the most service. Plans that enable traffic to turn left at a street intersection invite service patronage.

Competition in the city and on the street where the dealership is located is sufficiently intense to warrant a reasonable expenditure for elevation features capable of attracting the attention of fast-moving traffic.

Parts and Accessories Display

Parts sales is given corner prominence with displays exposed to both streets, as well as to gasoline station customers. The well, formed at the exit from the tractor-trailer stall, serves as a receiving and shipping entrance for the parts activity. The parts truck with its signs draws attention to the dealer's parts delivery service.

Gasoline Station Display

This station is planned to meet the requirements of important gasoline distributors. The location is adaptable to gasoline sales, and the station has been accorded sufficient space and prominence to compete successfully for patronage.

Store Front Display

The face of this building is finished in structural glass of a neutral gray color that provides an excellent background for signs and displays. This exterior wall treatment also is used on the interior wall of the gasoline station.

The rust-colored sign is a three-dimensional form rather than a surface decoration. The mass of the sign is exaggerated by using the same materials for the backwall of the gasoline station. This sign can be fabricated of asbestos sheathing and painted. The sign can be floodlighted from the roof to attract attention at night.

PLAN

New Car Department

The salesroom is designed to display three cars. Two are arranged as advertising and merchandising displays, while a third car is displayed for merchandising. Visibility of the show window displays is assured by the gasoline station aprons on one side, and the used car lot on the other.

Two offices are provided for salesmen. The offices of the dealer and sales manager can be combined to form a sales meeting room by folding back the separating partition.

Used Car Department

The used car lot is laid out so that three cars face street traffic. Other cars are visible along the driveway. All cars can be demonstrated and returned to their parking space with ease. The same driveway that connects with the used car displays also leads to the service parking stalls, thus fully utilizing the land area.

A used car sales office is in the main building. The office is elevated and its windows form a bay to give employes an unobstructed view of the lot. Toilets that adjoin the used car office are accessible from the outside so that they may be used when the remainder of the building is closed.

Service Department

The service facilities are planned around an L-shaped aisle which, in conjunction with the side street and filling station aprons, provides a continuous one-way traffic flow.

The angled stall space to the left of the entrance is allocated to service reception as this affords an easy approach for incoming traffic. The stalls beyond reception are used for quick service. Heavy repair stalls which occasion little traffic movement are placed opposite to reception service stalls to minimize travel along the entrance aisle.

The frame and front-end pit are located at the end of the entrance aisle so that adjustments to long trucks and tractor-trailers can be made under average load conditions. Two stalls of medium length are provided for servicing trucks. Longer trucks and tractor-trailer units use the drive-through stall.

New car conditioning, used car reconditioning, body repairs and painting are performed in stalls along the back of the shop. An additional lubrication stall is located inside the service department, adjoining the lubrication stall in the gasoline station. Locating the lubrication stalls in this way saves on equipment.

The tractor-trailer stall is placed diagonally to provide a drive-through stall without an extravagant use of land. The stall entrance is angled to reduce the frontage required. The gasoline station apron provides space for maneuvering.

Parts and Accessories

The parts salesroom is in the gasoline station while other parts activities are housed in the main building. This salesroom location provides good exposure to street and station traffic. The longer hours of operation create opportunities for additional sales. The salesroom is large enough to stock fast-moving parts and is near enough to the stockroom so that slower-moving parts can be secured quickly.

The parts stock bins are convenient to the service mechanics' counter which is centrally located. Bulky storage is on the mezzanine.

Parts shipments are protected from the weather as they are loaded and unloaded in the well at the end of the tractor-trailer stall. The receiving center adjoins the bin storage area and is connected to bulky storage by an elevator and stairway.

Gasoline Station

This gasoline station is planned to the specifications used by some major oil companies. It emphasizes easy traffic flow and customer conveniences. The station unit can be operated independently of the main plant, which makes practical a seven-day week and extra-hour days.

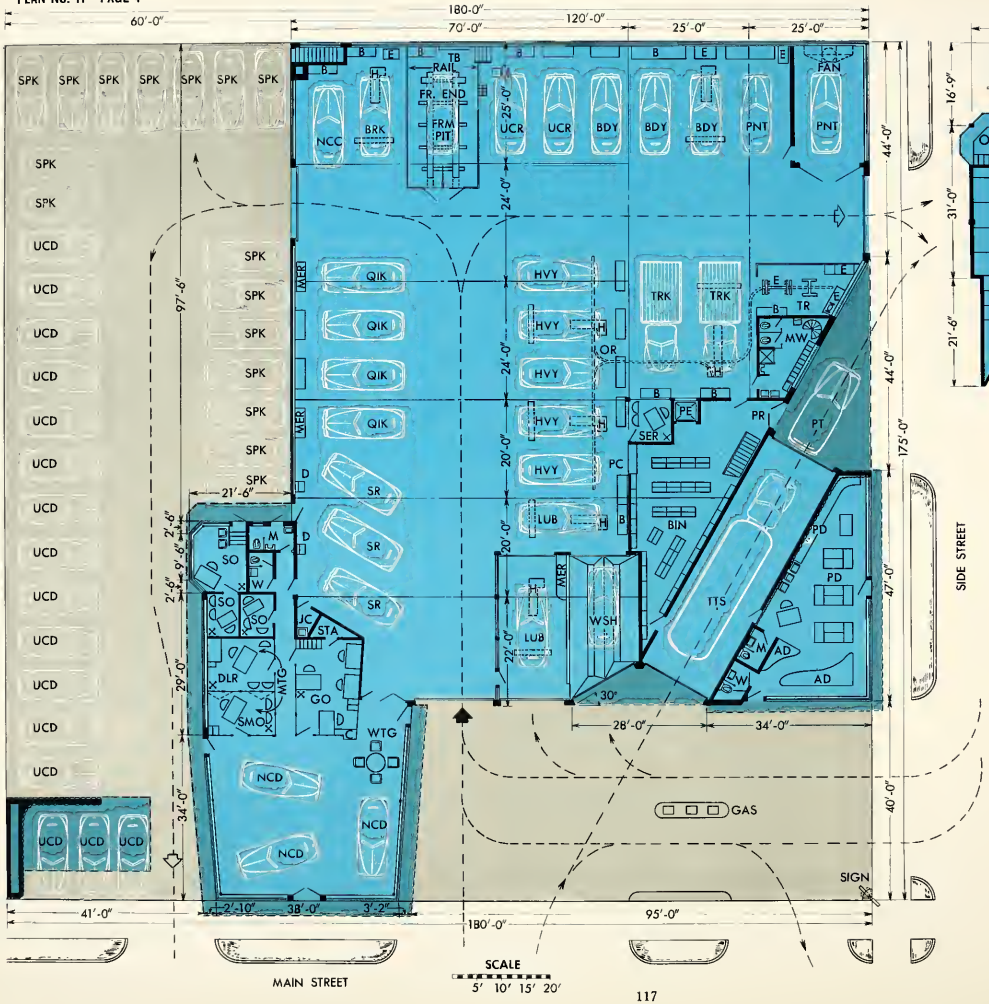
Management and Personnel

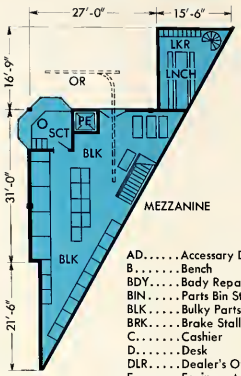
The general office is located where the staff can observe activities in the new car showroom. The cashier in the general office serves only the car sales and service departments. Cash for parts is handled by employes in the parts display room. The dealer's office is near the general office.

SPACE ANALYSIS—PLAN NO. 11

Area Description	Vehicles	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department		(9%)	(6%)
Showroom	3	1642	1760
Sales Office		67	67
Used Car Department		(1%)	(17%)
Used Car Display	16		4972
Salesmen's Office		235	235
Service Department		(70%)	(60%)
Productive Stalls Avg. Floor Area per Stall 465 Sq. Ft.	28	13024	14719
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.6	17		3983
Service Rooms		220	220
Service Offices		191	81
Parts Department		(12%)	(6%)
Parts Display		747	1104
Bin Storage		596	596
Bulky Storage		794	
Receiving		198	198
Management and Personnel		(7%)	(3%)
Offices		706	706
Personnel Conveniences		546	364
Gas Station		(1%)	(8%)
Pumps and Driveways			2325
Attendant and Public Conveniences		170	170
TOTAL	64	19,136	31,500

Ground Floor—Main Building—18,044 Sq. Ft.
Mezzanine—Main Building—1,092 Sq. Ft.





AD.....Accessary Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN.....Exhaust Fan
FR END..Front End Stall
FRM.....Frame Service
GAS....Gasoline Pump Island
GO.....General Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG....Meeting Room
MW....Mechanics' Washroom
NCD....New Car Display
NCC....New Car Conditioning
OR.....Overhead Rail for Chain Hoist
PC.....Parts Counter
PD.....Parts Display
PE.....Parts Elevator
PNT.....Paint Booth or Preparatory
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SKY.....Skylight
SMO....Sales Manager's Office
SO.....Sales Office
SPK.....Service Parking
SR.....Service Reception
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
TRK.....Truck Service
TTS.....Tractor Trailer Service
UCD....Used Car Display
UCR.....Used Car Reconditioning
W.....Women's Washroom
WSH....Wash Rack
WTG....Waiting Room

TRACTOR
TRAILER
GM
Quality Auto Sales
GM Quality

NO. 12 SPECIALIZED FUNCTIONAL UNITS

PERSPECTIVE

Competitive circumstances make it desirable to operate this business as two specialized activities—car sales (new and used), and service (including parts sales). This suggests two structurally separate units that can be operated singly or jointly.

New Car Display

The car sales unit, comprehending both the new and used car activities, is assigned to the corner location to take advantage of the traffic movements. This element of the building is developed as the chief point of architectural interest to attract and focus attention. The general offices over the showroom are designed as a penthouse to attract attention and suggest comfort.

The showroom forms a rectangle which makes possible a good arrangement of cars in window displays. Glass enclosure on three sides provides good distribution of natural light for advertising displays. Tall show windows admit large quantities of natural light.

The showroom is fitted with roller screens that can be dropped from the ceiling to form backgrounds against which to display individual cars. When the showroom is closed the screens are lowered to provide "bounce" for artificial light.

Used Car Display

The better used cars are shown under a canopy that faces the main street. The canopy in this situation has many uses. It serves as a connecting element between the car sales and parts and service structures. It attracts attention, provides shade, and creates good atmosphere for used car selling. In addition, the canopy supports signs and light fixtures.

PROBLEM

This dealer, it is assumed, desires to engage in a passenger car and truck business. It is to be located in a large southern town, where buildings characterized by a cool atmosphere have a definite advantage in attracting trade.

Service outlets that operate 10 to 16 hours a day are numerous in the community. These outlets provide a large market for replacement parts, and also provide strong service competition. This dealer, therefore, plans to operate 14 hours a day—to supply parts to wholesale customers and to render comparable service to his retail customers. The new and used car departments will not operate for such long hours, but sometimes may be open on Sunday when the service department is closed.

A far corner location that has many natural advantages for advertising display is available. Morning traffic follows the near side of the street.

Parts and Accessories Display

The parts activity is advertised by a display of the store interior. The store is planned so foreground fixtures display merchandise that can be sold by suggestion. Parts bins in the background suggest the availability of demand items.

Set-backs for the used car display and service court provide high visibility and protect the view of the parts display. Show windows on three sides of the store admit a large quantity of evenly distributed natural light which contributes to the effectiveness of the advertising display. Parking spaces visible to highway traffic suggest consideration for parts customers.

Service Display

A canopy advertises the service activity, provides weather protection and supports signs and lighting. Displays of genuine parts indirectly promote service. A wide driveway extending from the main street to the service court offers easy accessibility. The large court provides uncongested parking for reception and delivery.

Store Front Display

The architecture of this building is an expression of the plan function. Although the units operate separately, they are unified in appearance by the canopies, coloring and signs.

Extreme openness, consistent with the warm climate, characterizes the design.

PLAN

New Car Department

The new car showroom occupies the extreme corner of the plot where it is visible to the maximum traffic volume. The showroom is designed to exhibit two cars as combined advertising and merchandising displays, and a third car as an exclusive merchandising display. The far corner location provides long range visibility. The rectangular shape facilitates arrangement of displays. A sales manager's office and two sales offices adjoin the showroom.

Used Car Department

Cars and trucks can be displayed to both main and side streets. Display stalls have direct access to driveways, facilitating inspection and demonstration. A canopy protects main street displays, and also provides cover for employes and customers going between the two buildings.

A shelter for used car salesmen, at the inside corner of the sales building, commands a view of both main and side street displays. An outside entrance provides access to a private sales office when the showroom is closed. Similarly, the men's washroom is accessible when the new car salesroom is closed.

Service Department

The space devoted to service in this plan consists of four major elements—a service reception court, mechanical repair shop for passenger cars, a shop for body repairs and truck work, and a drive-through stall for quick service on tractor-trailer units.

The service reception court consists of a wide driveway leading from the public highway to a row of parking stalls. Four cars can park under the canopy at one time. They can be moved on to productive or parking stalls without maneuvering.

Mechanical repair stalls for passenger cars are grouped around the inside of a U-shaped driveway. The use of an outside driveway, instead of an inside aisle, greatly reduces building area and costs. Other stalls arranged around the outside of the U-shaped driveway efficiently utilize land area.

Body repairs, washing, painting, frame repairs and truck services are allocated to stalls in a building at the rear of the property. The specialized stalls that require fixed equipment or enclosures are built large enough to accommodate both trucks and passenger cars.

A drive-through stall for servicing tractors with trailers attached is located under a canopy between the two service buildings.

The tool room adjoins the heavy repair stalls. An office shared by the service manager and service salesmen overlooks the reception center.

Parts and Accessories Department

A salesroom, bin stockroom, bulky stockroom and receiving center comprise the parts department. The parts salesroom is designed to accommodate display tables, storage cabinets, a wrapping counter, waiting room and other customer conveniences.

A stockroom for bin storage is located between the salesroom and mechanics' service counter. Bulky storage occupies the mezzanine.

The receiving center provides space for stock piling and for a stairway and dumbwaiter leading to the mezzanine.

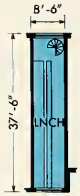
Management and Personnel

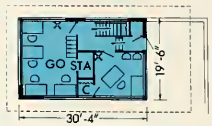
The dealer's office and the general office are in a penthouse above the car sales center, convenient to new and used car sales areas. It affords a view of service activities, provides a pleasant atmosphere, and adds an attractive element to the building.

SPACE ANALYSIS—PLAN NO. 12

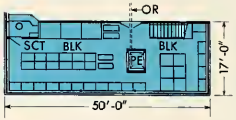
Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(12%)	(6%)
Showroom	3		1445	1620
Sales Offices			108	108
Used Car Department			(1%)	(28%)
Used Car Display				
Under Canopy	10	2160		2160
Open	15			6528
Sales Office			188	188
Service Department			(56%)	(57%)
Productive Stalls	19		6627	9791
Under Canopy	1	1423		1423
Avg. Floor Area per Stall 402 Sq. Ft.				
Parking Stalls				
Under Canopy	6	1322		1322
Open	19			5020
Ratio of Parking to Prod. Stalls 1.3:1				
Service Rooms			242	242
Service Offices			273	225
Parts and Accessories Department			(17%)	(5%)
Parts Sales		200	943	1143
Bin Storage			163	163
Bulky Storage			814	
Receiving			237	237
Parts Customers' Parking	2	458		(1%) 458
Management & Personnel			(14%)	(3%)
Offices			686	95
Personnel & Customer Conveniences			1027	727
TOTAL	75	5563	12,753	31,450

Ground Floor—Main Building 10,993 Sq. Ft.
Penthouse—Main Building..... 591 Sq. Ft.
Mezzanines—Main Building..... 1,169 Sq. Ft.





PENT HOUSE



MEZZANINE NO. 1

AD.....Accessary Display
B.....Bench
BDY.....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FAN....Exhaust Fan
FR END..Front End Stall
GO.....General Office
H.....Hoist
HVY....Heavy Repairs
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG....Meeting Room
MW.....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display
OR.....Overhead Rail Chain Hoist
PC.....Parts Counter
PCP.....Parts Customers' Parking
PD.....Parts Display
PE.....Parts Elevator
PNT.....Paint Booth
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SHR.....Shower Stall
SMO....Sales Manager's Office
SO.....Sales Office
SPK....Service Parking
SR.....Service Reception
SSO....Service Salesmen's Office
STA.....Stationery and Records
TB.....Tool Board
TR.....Tool Room
TRK.....Truck Service
UCD....Used Car Display
UCR....Used Car Reconditioning
UCS....Used Car Salesmen's Shelter
UTD.....Used Truck Display
W.....Women's Washroom
WSH....Wash Rack
WTG....Waiting Room

GM Quality Motors
PARTS
USED Quality Motors CARS

NO. 13 NEAR CORNER LOCATION

PROBLEM

Here it is assumed that the dealer desires to engage in a combination truck and passenger car business.

The business is located in a suburb where strong competition for customer attention is encountered. The dealer, therefore, desires a building that compares favorably with neighborhood stores. It should be capable of attracting the attention of people who are accustomed to metropolitan scenes.

The building is to be erected on a main thoroughfare carrying heavy automobile traffic, but comparatively little pedestrian traffic; therefore the building should be impressive through its size and mass rather than through use of detail.

The land is located on a near corner that possesses limited visibility to highway traffic. To capitalize on traffic movements, it is necessary to set back certain portions of the building to secure greater visibility for signs and displays.

The lot is on the near side of the street to morning traffic going toward the central business district. The dealer expects to draw a major share of his service business from this traffic, so the service entrance will be located for their convenience.

PERSPECTIVE

An elevation designed to interest fast traffic integrates departmental displays with the central theme. Loosely related displays might not be noticed.

New Car Display

Visibility of the new car display to the most important traffic stream is assured by locating the showroom at the building line and setting back other portions of the building. Visibility to highway traffic is fully protected by streets and aprons.

The show windows are set at angles so they are more nearly perpendicular to the important viewing points. Both the location and shape of the showroom help to make it clearly visible to highway traffic.

A large sign carrying the product emblem and name of the dealership is placed over the showroom to attract and focus attention.

Used Car Display

Main street frontage can be utilized more profitably for displaying used cars than for displaying the side wall of the service department. Hence, the service department is set back on the lot to provide more frontage for used car display.

A canopy over the used car display draws attention and provides more comfortable viewing conditions. The canopy is set back from the property line to provide space for a landscaped foreground and to improve visibility of the car displays. A supporting pillar is located away from the driveway to eliminate any feeling of enclosure.

The canopy incorporates skylights for good daytime illumination, with artificial lighting concealed behind the cross beams for exceptional lighting effects at night. The sign lettering identifies the used car activity.

Service Display

The service entrance is made inviting by a wide apron that permits customers to drive onto the dealer's property quickly. A large entrance door suggests easy access. The service activity is identified by an authorized service sign mounted at right angles to the traffic stream.

Parts and Accessories Display

The parts activity is identified by a simple sign facing main street traffic. Side street frontage provides additional sign area and advertising display for the parts and accessories activities.

Store Front Display

This design places first emphasis on identifying the business as a whole by means of a vertical sign over the showroom and a display of new cars. The vertical lines of the new car display contrast with the horizontal lines of the used car display.

Harmonizing colors are used for the exterior of this building. The colors are repeated in a way that gives pattern to the building and retains interest. The dark tones used for sign backgrounds contrast well with the bright metal letters.

The facing material for this building may be structural glass or porcelain on metal. The background for the used car sign may be of metal or asbestos sheathing.

PLAN

This layout gives some main street exposure to the new car, used car and service activities. Since the parts sales potential is wholesale rather than retail, a side street exposure is planned for that activity.

New Car Department

The showroom is designed to display four vehicles. Its dimensions make possible a variety of arrangements. Two cars may be placed on advertising display and two on merchandising display. The most important view is protected by setting back the service entrance and used car display. Sales offices are located for the convenience of salesmen and their prospects.

Used Car Department

Space is provided to display twenty used cars under roof. Seven cars face street traffic and fourteen face driveways. All but five cars can be demonstrated and returned to their stalls without moving another car.

The used car displays are set back five feet from the property line to allow for landscaping. A low curb defines the display area. The sixty-five foot roof section is supported without columns in the aisle or stalls. The column needed to support the long frontal span is located away from the driveway.

A salesmen's shelter and office occupy a corner of the main building adjoining the used car display. The office is elevated so attendants can observe activities in the sales area. An outside entrance to the men's room makes these facilities available when only the used car office is open and the remainder of the building is closed.

Service Department

Main street traffic reaches the service entrance over a wide apron. As traffic enters the building it turns into the reception stalls arranged at a 60-degree angle to the left of the aisle. Customers entering the reception area are reminded of service needs by a well-equipped lubrication department which lies ahead of them, and by merchandising equipment and signs in the stalls across the aisle. The front-end and brake stalls are directly within the customers' line of vision as they enter the service department.

Heavy repair stalls and the toolroom are grouped in one wing of the shop. New car conditioning, used car reconditioning and body repairs are grouped on the other side of the entrance aisle. Stalls large enough to accommodate trucks are arranged along the end of the shop. Specialized truck repair stalls, a wash rack and paint spray room are included. Service parking is provided on the rear of the lot.

The service manager's office is convenient to the shop, parts stockroom and the service control tower. The tower, situated on the mezzanine, commands a comprehensive view of the entire service area.

Parts and Accessories Department

The parts department display to the street consists of shallow window displays. Display cases also are arranged in the area visited by parts customers. Accessory displays are adjacent to the new car and service waiting area. Other displays face the service reception stalls.

A stockroom for bin storage is on the ground floor and another for bulky storage is on the mezzanine. Separate service counters for mechanics and customers are arranged so that the same employes can wait on both counters. The cashier is located across the aisle from the customer counter and close to the parts and accessories displays.

The receiving center connects with the outside street and also with a service stall that can accommodate the parts truck. A parts elevator, stairway and chain hoist connect the receiving area with bulky storage.

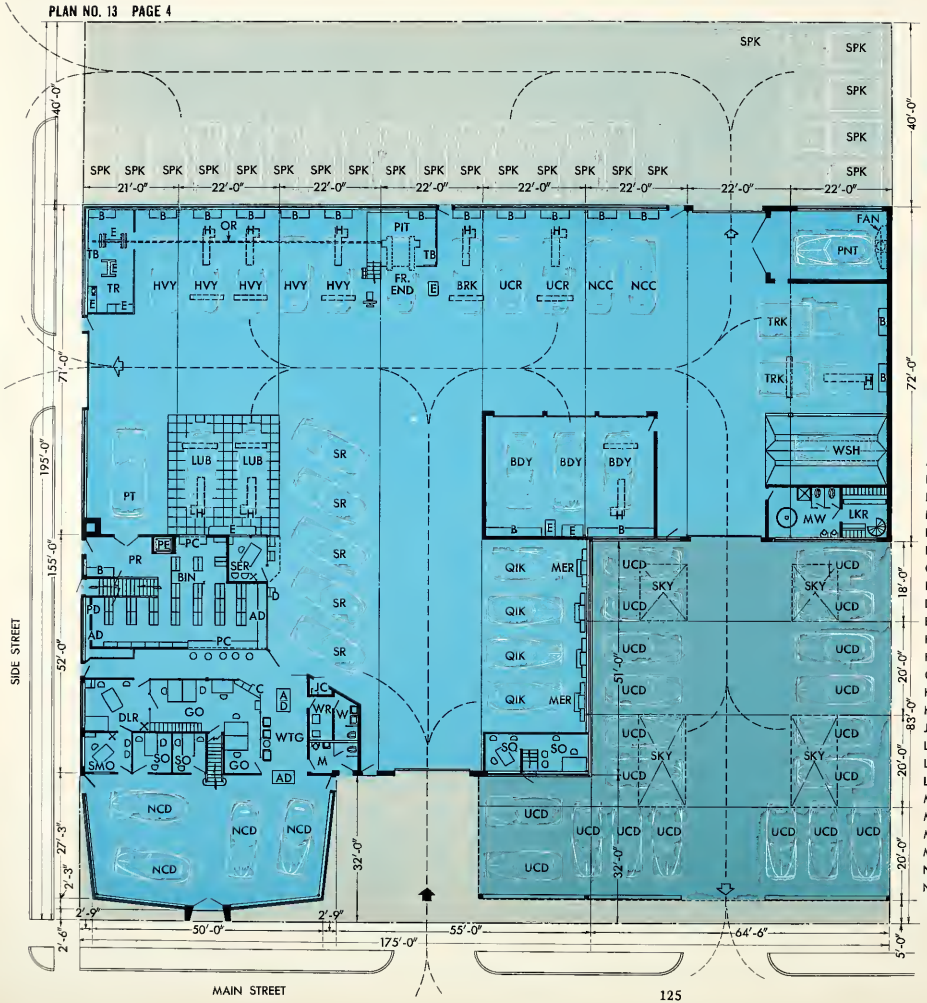
Management and Personnel

The dealer's office is located near the offices of department managers and the general office. Restroom facilities are adjacent to the waiting room. A janitor closet adjoins the restroom where it is near plumbing connections. A meeting room and record storage is provided on the mezzanine.

SPACE ANALYSIS—LAYOUT NO. 13

Area Description	Vehicles	Sq. Ft. Under Canopy	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(8%)	(7%)
Showroom	4		1649	2351
Sales Offices			144	144
Used Car Department			(1%)	(19%)
Used Car Display	20	5676		6121
Salesmen's Office			207	207
Service Department			(69%)	(67%)
Productive Stalls Avg. Floor Area per Stall 499 Sq. Ft.	30		14,965	15,525
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.4	21			7000
Service Rooms			253	253
Service Offices			200	90
Parts and Accessories Department			(13%)	(4%)
Parts Sales			487	487
Bin Storage			534	534
Bulky Storage			1650	
Receiving & Stair			214	214
Management & Personnel			(9%)	(3%)
Offices			1257	657
Personnel Conveniences			875	542
TOTAL	75	5676	22,435	34,125

Ground Floor—Main Building.....19,744 Sq. Ft.
Mezzanines—Main Building..... 2,691 Sq. Ft.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64'-6"
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GENERAL MOTORS
QUALITY AUTO SALES
Sales
Service
Parts

NO. 14 MULTI-STORY BUILDING ON AN INSIDE LOT

PROBLEM

As a background for this design it is supposed that the dealer has been granted a franchise for the sale of passenger cars in a large metropolitan center. The business is to be located within the central business district of a city where land values are so high that only a multiple-story building can be considered.

The site chosen is on a main thoroughfare with exposure to a large volume of pedestrian and vehicular traffic. The lots are located in the center of the block and have 80 feet frontage. Competition for customer attention is particularly keen in this area and neighboring merchants make effective use of store fronts.

The dealer expects to derive a substantial share of his service volume from employes in surrounding stores and offices. Peak service volume will arrive just before the opening of other stores and offices, when traffic on the street also is heavy. This necessitates close attention to traffic problems.

PERSPECTIVE

An important goal in developing a store front for this property is to provide adequate display for the four major departments of the business within the limited frontage available. Other objectives are to provide an easy approach to the service department and to capitalize on both vehicular and pedestrian traffic at the location.

It is felt that these objectives can best be achieved by recessing the building front from the property line. By setting back portions of the store front, the length of usable display frontage is increased. The set-back also enables service customers to wait clear of the public thoroughfare while service entrance doors are being opened. Angling the store front permits windows to be set so that approaching traffic receives a clearer view of the displays. Pedestrians can step clear of sidewalk traffic to view either the car or parts displays.

The sign carrying the dealer's name is mounted at right angles to the traffic streams so that it will receive maximum attention. The product name appears over the display frontage in a cove which makes possible a variety of lighting effects. Departmental signs appear above the various displays. Portable signs may be used to point up second floor displays.

Portions of the building fronting on the property line might be executed in structural glass, porcelain over metal or natural stone. Recessed portions of the elevation may be done in metal, composition sheathing or plaster.

PLAN—FIRST FLOOR AND MEZZANINE

New Car Department

The new car showroom is planned to display one car that serves a combined advertising and merchandising function, and two cars exclusively for merchandising. The showroom also provides space for customer waiting and an accessory display case.

The office of the sales manager and two sales offices are located near the showroom. A sales meeting room is located below the ramp.

Service Department

The service activities allocated to the first floor are those that require the frequent movement of cars, and those that utilize equipment that extends below floor level and should therefore, be placed over unexcavated areas.

Service reception stalls are placed to the left of the aisle at an angle so they can be entered easily by average drivers. The three reception stalls are supplemented by the quick service stalls which are used for reception during peak periods. The aisle also is used for reception.

The front-end stall is arranged in a corner where the ramp extensions do not interfere with vehicle circulation in the aisles. The service manager's office and the control tower are located on the main floor.

Parts and Accessories Department

The parts sales area is arranged adjacent to the street and a door provides direct access for pedestrians. The cashier for the parts and service departments is located in the parts sales area. The service waiting room is likewise in the parts salesroom. As service customers pay their bills and wait for delivery of their cars, they see displays of car and service accessories.

Bin storage for small parts is located on the main floor between the salesroom and the mechanics' counter supplying the quick service stalls. Storage for parts that are bulky or on which there is low turnover is provided on the mezzanine floor.

Parts are received on the main floor. The stall adjoining the receiving entrance is used as a loading place for parts trucks. A parts elevator connects the receiving area with the bulky storage area on the mezzanine floor and also takes care of transporting parts to the service area on the second floor.

A private office for the parts manager is included in the design.

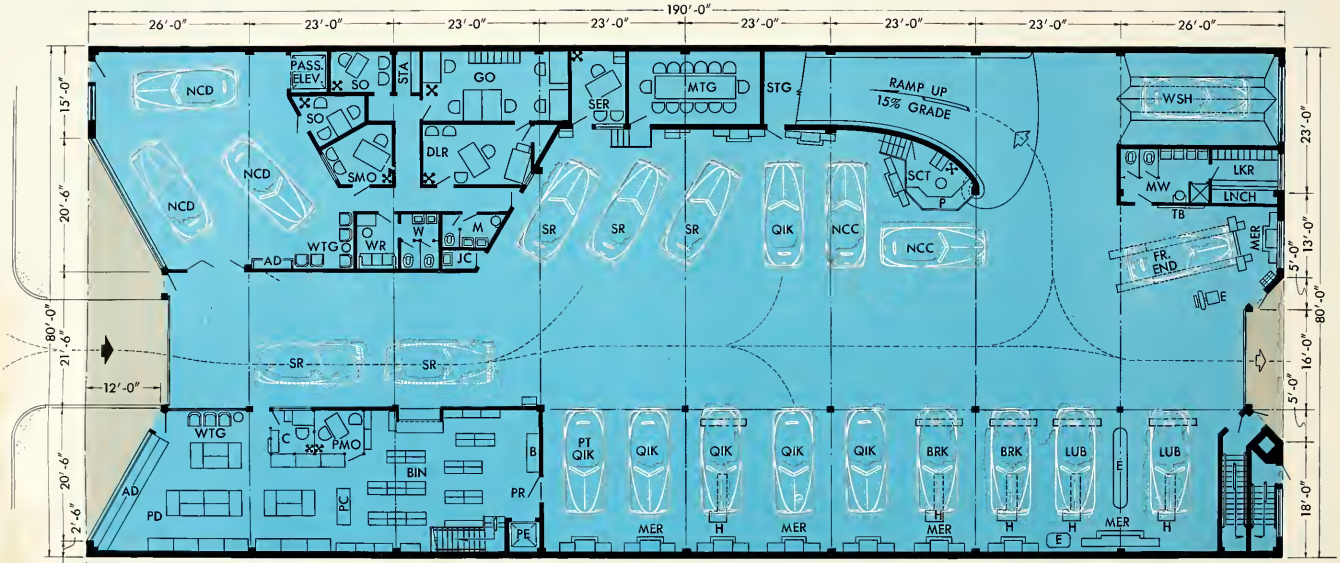
Management and Personnel

The dealer's office adjoins the general office and is within a convenient distance of the new car showroom. Restrooms for employes and customers are convenient to the offices and salesrooms. A women's lounge is included. The janitor closet is located centrally for convenience and adjacent to the washrooms to reduce plumbing costs.

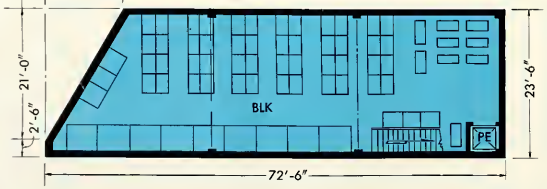
SPACE ANALYSIS—PLAN NO. 14

Area Description	Vehicles	Sq. Ft. of Roof Area	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(4%)	(10%)
Showroom	3		1190	1313
Sales Offices			185	185
Used Car Department			(15%)	
Used Car Salon	11		3416	
Roof Display Under Canopy	13	3680		
Open	10	3472		
Offices, Ramp & Elev.			1265	51
Storage Room			159	
Service Department			(66%)	(69%)
Productive Stalls Avg. Floor Area per Stall 547 Sq. Ft.	38		18,554	9673
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.5	26	6156		
Ser. Rooms, Ramp & Stair			2472	569
Service Offices			222	222
Parts and Accessories Department			(10%)	(11%)
Parts Sales			768	891
Bin Storage			483	483
Bulky Storage			1577	
Receiving			221	221
Parts Office & Cashier			105	105
Management and Personnel			(5%)	(10%)
Offices			729	729
Meeting Room			277	277
Personnel & Customer Conveniences			773	481
TOTAL	101	13,308	32,396	15,200

Basement..... 1,577 Sq. Ft. Roof Enclosed..... 1,532 Sq. Ft.
Ground Floor....14,591 Sq. Ft. Roof Under Canopy... 3,680 Sq. Ft.
Second Floor....14,696 Sq. Ft. Roof Open..... 9,628 Sq. Ft.



FIRST FLOOR LAYOUT

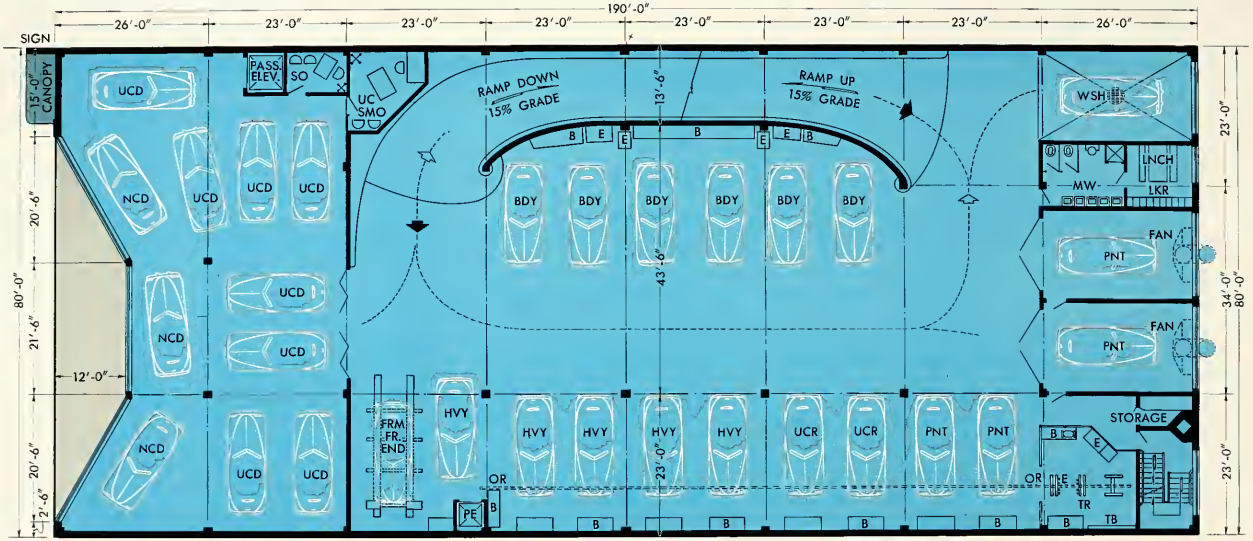


BASEMENT LAYOUT

SCALE

5 10 15 20

AD.....Accessory Display
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BRK.....Brake Stall
C.....Cashier
D.....Desk
DLR.....Dealer's Office
E.....Equipment
FR END..Front End Stall
GO.....General Office
H.....Hoist
JC.....Janitor's Closet
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER.....Service Merchandisers
MTG....Meeting Room
MW.....Mechanics' Washroom
NCC....New Car Conditioning
NCD....New Car Display
PC.....Parts Counter
PD.....Parts Display
PE.....Parts Elevator
PMO....Parts Manager's Office
PR.....Parts Receiving
PT.....Parts Truck
QIK.....Quick Service
SCT.....Service Control Tower
SER.....Service Manager's Office
SMO....Sales Manager's Office
SO.....Sales Office
SR.....Service Reception
STA.....Stationery and Records
STG....Storage Room
TB.....Tool Board
W.....Women's Washroom
WR.....Women's Restroom
WSH....Wash Rack
WTG....Waiting Room



SECOND FLOOR LAYOUT

SCALE
5 10 15 20

PLAN—SECOND FLOOR

A salesroom and service stalls occupy the second floor.

Used Car Department

The second floor salesroom provides for displaying three vehicles that serve a combined merchandising and advertising purpose, plus eight additional cars as merchandising displays. Used cars can be demonstrated easily because the showroom connects directly with the service aisle and ramp.

An office for the used car sales manager and an office for salesmen adjoin the used car salon.

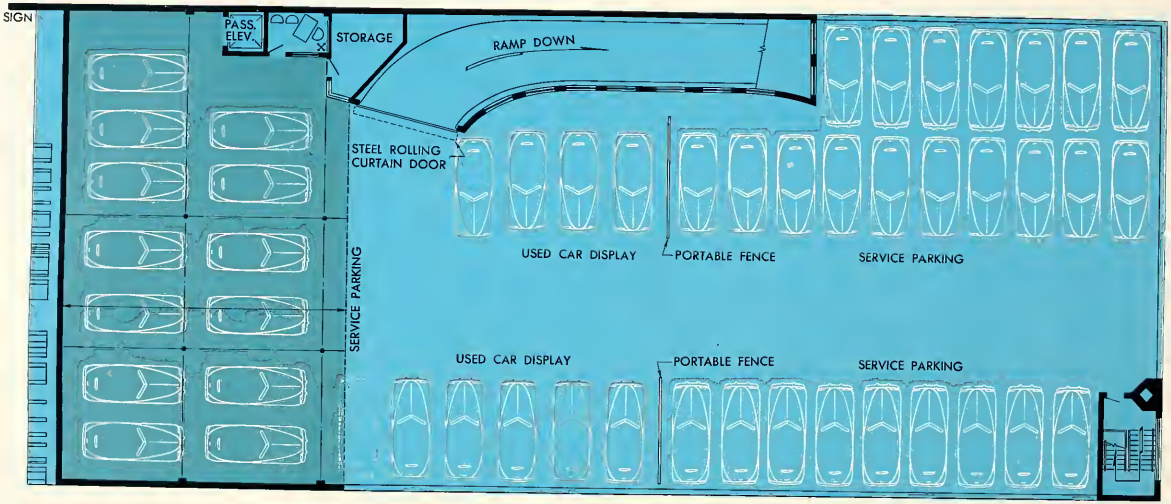
Service Department

The service activities assigned to the second floor consist primarily of collision and mechanical repairs. These activities require only infrequent movement of cars. This reduces aisle traffic and, in turn, facilitates circulation between service parking on the roof and service reception, quick service stalls and deliveries on the ground floor.

The collision group consists of stalls for frame repairs, body repairs, used car reconditioning and painting. Frame straightening is preliminary to body repairs. The location of a frame stall near the body stalls helps to organize collision work. Washing also is preliminary to some body repairs, so a wash rack in the body department is convenient.

Grouping the used car reconditioning with body repairs makes possible interchangeable use of stall space. Paint preparatory stalls are used jointly for used car reconditioning and customer work. The location of paint spray booths at the end of the aisle assures easy access and discourages spraying cars outside the booth.

Heavy repair stalls are near the tool room where specialized equipment is available for reconditioning mechanical parts.



ROOF LAYOUT
SCALE
5 10 15 20

B.....Bench
BDY.....Body Repairs
FAN....Exhaust Fan
FR END..Front End Stall
FRM....Frame Stall
HVY....Heavy Repairs
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
MW....Mechanics' Washroom
NCD....New Car Display
OR.....Overhead Rail for Chain Hoist
PE.....Parts Elevator
PNT.....Paint Booth
SO.....Sales Office
TB.....Tool Board
TR.....Tool Room
UCD....Used Car Display
UCR....Used Car Reconditioning
UC SMO.Used Car Sales Mgr's Office
WSH....Wash Rack

PLAN—ROOF

This roof is utilized for service parking and the display of used cars. One portion is covered with a canopy to protect the better used cars from dirt and rain spotting. The open portion is used for displaying the less expensive cars.

A portion of the space protected by the canopy is used for service parking. Cars that are clean and those that are left to be washed, polished or painted are fully protected until they are delivered to the customer. Open storage space is provided for parking other cars before and after they are serviced.

GENERAL MOTORS
Quality Auto Sales
Quality Auto Sales
PARTS
EXIT
SERVICE

NO. 15 MULTI-STORY BUILDING AT CORNER LOCATION

PERSPECTIVE

New Car Display

The corner of this property is allocated to the new car showroom to capitalize on the advantages of the location. The show windows of the ground floor showroom are set back from the property line to permit pedestrians to step clear of sidewalk traffic while they view cars on display. The short-cut formed at the corner draws traffic toward the show windows. The overhanging second story provides weather protection for pedestrians.

The ground floor showroom is of sufficient size to display full side views of cars to both streets. The square shape of the room permits cars to be arranged for uniform natural illumination. The background of the showroom is finished in light colors that contrast well with the cars. The light colors of the ceiling and walls reflect natural and artificial light which increases natural illumination and reduces the cost of artificial lighting.

Used Car Display

The second floor showroom is used to display either new or used cars. It provides exposure to both intersecting streets. It has particular advantage in appealing to motor traffic as the view of the show windows is not obstructed by ground level traffic. The second floor show windows also provide space for displaying signs directing attention to sales of special or seasonal interest.

PROBLEM

In this situation it is supposed that the dealer desires to engage in a passenger car business having a sales potential in excess of five hundred units per year. The business is to be located in a metropolitan center on an important traffic artery in the central business district.

The location is exposed to a large volume of vehicular and pedestrian traffic. The sales opportunities in this area are high and the intense competition for patronage is expressed in buildings and store fronts. Land values are so high that only multi-story construction can be considered.

The site chosen for the business is on the side of the street used by inbound traffic. The heavy traffic tide passes on the dealer's side of the street in the morning. The lot is on the far corner to main street traffic which affords a long period of visibility and an exceptional opportunity for display.

Service Display

The sign over the service entrance identifies the business and directs traffic. The entrance door is placed as far back from the main street as possible so that it will be less obstructed by side street traffic that is waiting to enter or cross the main street.

The cost of land in this area does not justify setting the entrance back from the building line sufficiently to provide an approach apron. The less traveled side street substitutes for an apron.

Continuous windows and modern casements are used to brighten the service department and give it a fresh appearance.

Parts and Accessories Display

The parts salesroom gains prominence from the fact that it extends outward to the building line. The window that faces approaching traffic affords some of the advantages in visibility associated with a corner location. Attention is attracted to the parts display by the dark frame around the window and the narrow canopy and three-dimensional sign above it.

The show windows are designed to feature counter displays in the foreground and stock bin displays in the background. Patronage is invited by an entrance that provides direct access from the street to the parts salesroom.

Store Front Display

All four operating departments of the business are represented in the exterior display.

The showroom is a combination of glass and chrome, terminated at both ends by dark marble elements. The parts display is framed with marble on three sides and ties in with the showroom on the fourth.

Attention is drawn to the second floor display by a stainless steel support column which is outside the building at ground level and pierces the second floor showroom. The second floor show windows are framed by limestone with ample space on both sides of the window for a dealer's sign. The product sign appears above the windows. The name "General Motors" faces in one direction, and the "GM" insignia appear on the short section of the sign which faces in the other direction.

FIRST FLOOR—PLAN NO. 15

New Car Department

The new car showroom is designed to display four cars. Two of the cars serve a combined advertising and merchandising function. The other two cars serve a merchandising function. Traffic along the main street receives a good side view of one car and a good front view of another. A side view of one car is seen from the side street.

The salesroom is set back a distance of 6 feet from the main street property line to attract attention to the building and to invite inspection of the displays by sidewalk traffic. This added distance between the showroom and the vehicle lane makes the displays more visible to motor traffic.

The office of the sales manager and two offices for the use of salesmen adjoin the new car showroom. A sales meeting room is provided on the second floor.

Parts and Accessories Department

The parts sales area is designed to accommodate sixteen display counters, five wall cabinets and a service counter. Portable accessory counters are arranged in the passageway through which cars are brought to the showroom. These displays are visible to customers in the waiting area.

Bin storage is on the ground floor. Bulky parts are in the basement. Storage for oil, anti-freeze and other inflammables is in a separate room.

The space for parts receiving adjoins stall space for a delivery truck. The receiving area is connected with the mezzanine stockroom by a parts elevator and a stairway.

A private office for the parts manager is located so he can oversee much of the activity in his department.

Service Department

The entrance is located at the rear of the building to reduce friction with side street traffic. The exit is directly in front of the ramp leading from the parking roof. The "U"-shaped aisle provides a semi-continuous flow of one-way traffic.

The stall space on the first floor is used for reception and for services that require little time, such as lubrication, washing and minor adjustments. Service reception stalls are straight ahead and to the left of the entrance. The lubrication stalls and quick service stalls are directly opposite service reception. The appearance of these stalls is enhanced by the use of merchandising equipment.

A wash rack and a polish stall are to the right of the service reception area and are a basis for suggestive selling. The front-end stall is off the main traveled aisle. Brake stalls adjoin the front-end stall.

Two stalls at the right of the entrance are assigned to new car conditioning because work of this type requires only an occasional movement of cars which might interfere with entering traffic.

The cashier's desk, service waiting room, service delivery point and exit doors are all well located in relation to each other.

This location of the cashier is convenient to customers coming from the street and it acquaints them with the available inventory of genuine parts. It also creates floor traffic for the parts department.

The service manager's office and control tower are on the main floor. The control tower is located to give the dispatcher a clear view of the service entrance and all stalls on the main floor. The tower is within the reception area which is helpful in scheduling incoming work.

A lunchroom, locker room, shower and washroom are provided for the mechanics.

Management and Personnel

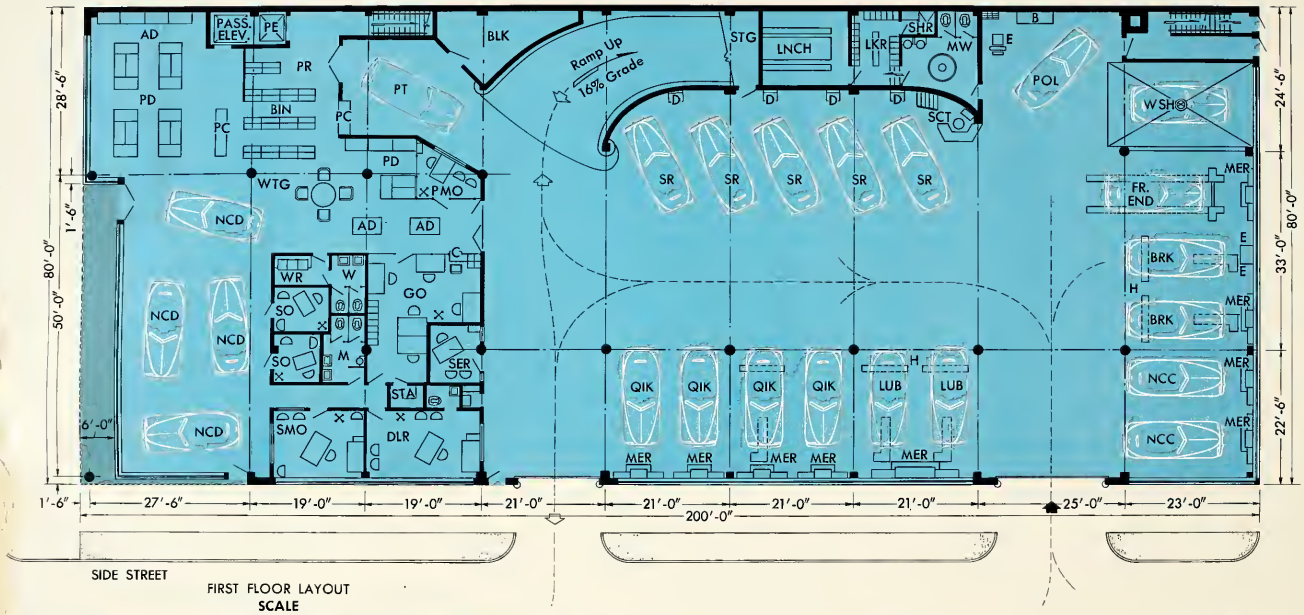
The dealer's office adjoins the general office. The offices are not adjacent to salesrooms because in a business of this size, administrative personnel participate very little in operating activities.

A private lavatory adjoins the dealer's office. Other washrooms are convenient to the offices and salesrooms.

SPACE ANALYSIS—PLAN NO. 15

Area Description	Vehicles	Sq. Ft. of Roof Area	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(4%)	(11%)
Showroom	4		1302	1625
Sales Offices			144	144
Used Car Department			(17%)	
Used Car Salon	16		4397	
Roof Display, Open	25	6388		
Offices, Ramp and Elev.			1677	120
Service Department			(58%)	(62%)
Productive Stalls Avg. Floor Area per Stall 539 Sq. Ft.	37		17521	9096
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.3	28	8085		
Serv. Rooms and Ramp			2689	710
Service Offices			142	142
Parts Department			(14%)	(15%)
Parts Sales			1012	1012
Bin Storage			381	381
Bulky Storage			2055	
Oil, Grease and Anti-Freeze Storage			200	200
Shop Parts			570	
Receiving	1		659	659
Parts Office			77	77
Management and Personnel			(7%)	(12%)
Offices			897	897
Meeting Room			315	
Personnel and Customer Conveniences			1213	937
TOTAL	111	14,473	35,251	16,000

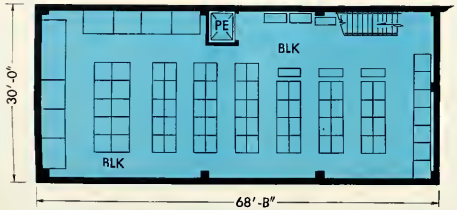
Basement Area—Main Building—2,055 Sq. Ft.
Ground Floor—Main Building—15,669 Sq. Ft.—Capacity 23 Cars
Second Floor—Main Building—16,000 Sq. Ft.—Capacity 35 Cars
Roof—Main Building
Enclosed—1,527 Sq. Ft.—Open—14,473 Sq. Ft.—Capacity 53 Cars



FIRST FLOOR LAYOUT

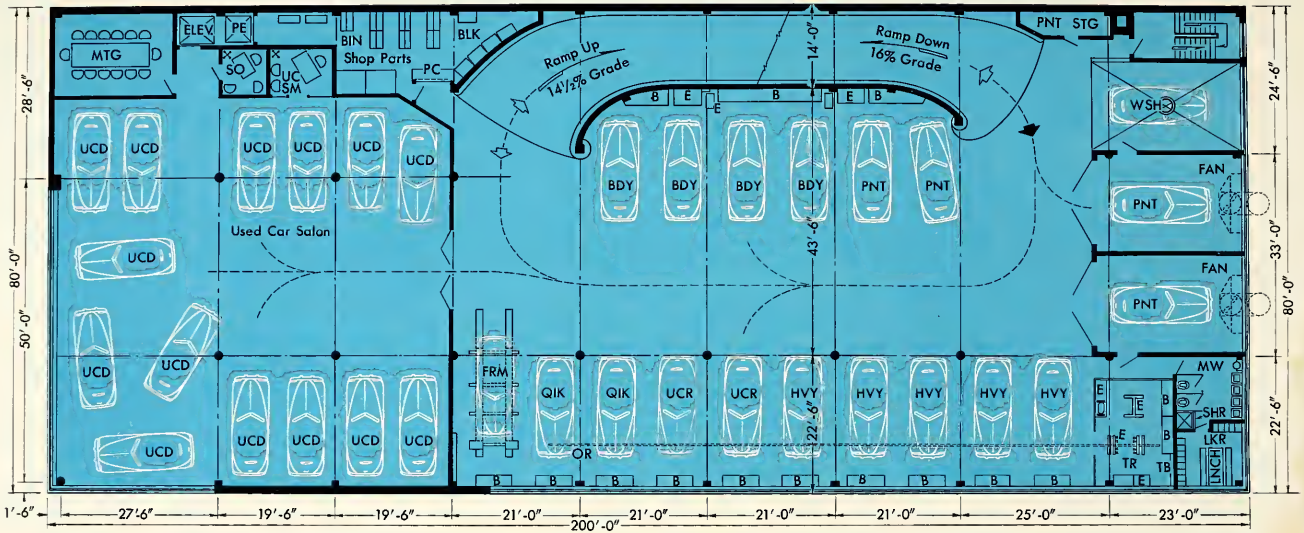
SCALE

5' 10' 15' 20'



BASEMENT LAYOUT

AD . . . . . Accessory Display
B. . . . . Bench
BDY. . . . . Body Repairs
BIN . . . . . Parts Bin Storage
BLK . . . . . Bulky Parts Storage
BRK. . . . . Brake Stall
C. . . . . Cashier
D. . . . . Desk
DLR . . . . . Dealer's Office
E. . . . . Equipment
FAN. . . . . Exhaust Fan
FR END. . Front End Stall
GO. . . . . General Office
H. . . . . Hoist
HVY . . . . Heavy Repairs
JC. . . . . Janitor's Closet
LKR . . . . . Mechanics' Locker Room
LNCH . . . Mechanics' Lunchroom
LUB . . . . . Lubrication Stall
M . . . . . Men's Washroom
MER. . . . Service Merchandisers
MTG. . . . Meeting Room
MW . . . . Mechanics' Washroom
NCC. . . . New Car Conditioning
NCD. . . . New Car Display
OR . . . . . Overhead Rail Chain Hoist
PC. . . . . Parts Counter
PD. . . . . Parts Display
PE. . . . . Parts Elevator
PMO. . . . Parts Managers Office
PNT. . . . . Paint Booth
POL. . . . . Polish and Paint Preparatory
PR. . . . . Parts Receiving
PT. . . . . Parts Truck
QIK. . . . . Quick Service
SCT. . . . . Service Control Tower
SER . . . . . Service Manager's Office
SMO. . . . Sales Manager's Office
SO . . . . . Sales Office
SPK. . . . . Service Parking
SR. . . . . Service Reception
STA. . . . . Stationery and Records
STG . . . . Storage Room
TB . . . . . Tool Boord
TR . . . . . Tool Room
UCD. . . . Used Car Display
UCR . . . . Used Car Reconditioning
UCSM . . . Used Car Sales Manager
W . . . . . Women's Washroom
WR . . . . . Women's Restroom
WSH. . . . Wash Rack
WTG . . . Waiting Room



SECOND FLOOR LAYOUT

SCALE

5' 10' 15' 20'

SECOND FLOOR—PLAN NO. 15

The second floor is used primarily to display used cars and for service operations that require relatively infrequent movement of cars. Allocating the second floor to purposes that require only occasional movement of cars increases operating efficiency by reducing internal traffic between floors and stalls. Keeping the second floor aisleway clear speeds the movement of cars between service reception and service delivery on the ground floor, and the service parking area on the roof.

Used Car Department

The used car salon provides space to arrange three cars for advertising display and twelve cars as merchandising displays. Cars can be demonstrated easily because every stall in the salesroom has direct access to the aisle that connects with the service ramp and building exit.

An office for the used car sales manager and a separate office for salesmen adjoin the sales area. A passenger elevator carries customers from the ground floor to the display room. Customers wishing to see less expensive cars may be guided to the open displays on the roof.

Service Department

The service stalls on the second floor are arranged around a U-shaped aisle that connects with the up and down ramps. Two quick service stalls are located at the head of the ramp. The stall for frame straightening is located in a corner where it does not interfere with traffic in the main aisle.

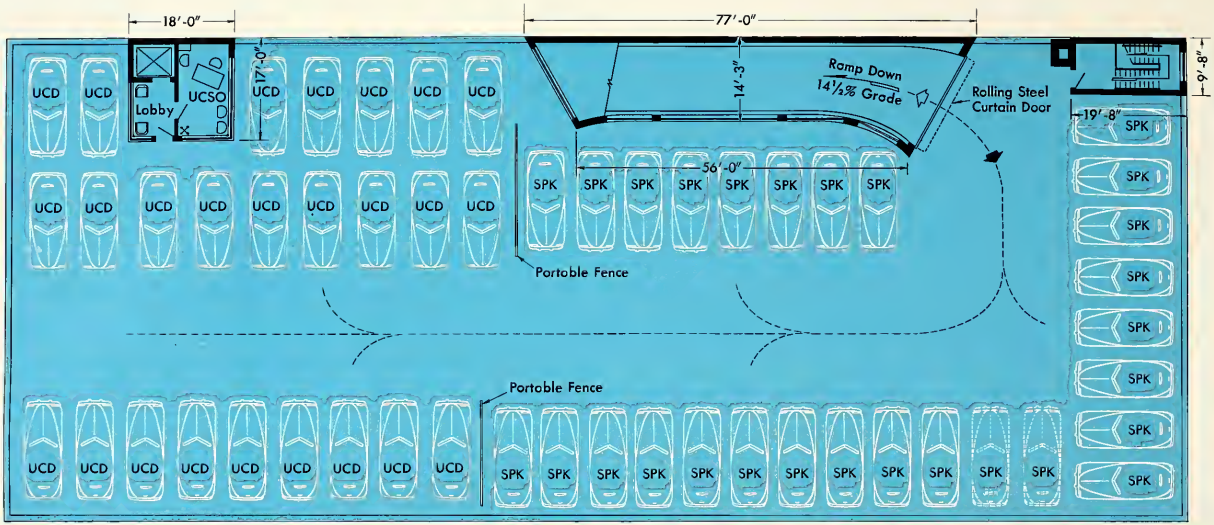
Stalls for body repair, used car reconditioning and new car conditioning occupy one area. A wash rack and stalls for painting, preparatory and polish work are nearby. The paint spray stalls are arranged across the end of the aisle for accessibility. Four heavy repair stalls adjoin the tool room in the rear corner of the building.

A lunch and locker room for the employes on this floor occupies the extreme corner of the building where good light and ventilation is possible. Separate toilet facilities also are provided for men on this floor

Parts and Accessories Department

A small parts room supplies the mechanic working on this floor. This parts room supplied by the parts elevator that connec with the stockrooms on the ground a mezzanine floors.

A fireproof room for storage of pain materials also is provided on this floc



ROOF LAYOUT

SCALE

5' 10' 15' 20'

B.....Bench
BDY ....Body Repairs
BIN ....Parts Bin Storage
.K ....Bulky Parts Storage
.....Equipment
ELEV....Passenger Elevator
FAN ....Exhaust Fan
HVY ....Heavy Repairs
'KR.....Mechanics' Locker Room
.NCH ...Mechanics' Lunchroom
ATG....Meeting Room
AW ....Mechanics' Washroom
OR.....Overhead Rail Chain Hoist
PC .....Parts Counter
PE.....Parts Elevator
PNT.....Paint Booth
QIK.....Quick Service
SO .....Sales Office
SPK.....Service Parking
STG ....Storage Room
TB.....Tool Board
TR.....Tool Room
UCD....Used Car Display
UCR ....Used Car Reconditioning
UCSM...Used Car Sales Manager
WSH....Wash Rack

ROOF—PLAN NO. 15

Used Car Department

The roof of the building is used to display used cars and for service parking. The used car area provides space for a display of twenty-five cars. Eighteen of the display spaces connect directly with an aisle which facilitates demonstration. Seven of the cars can be demonstrated only after the movement of another car. Prospective customers are brought to the sales roof by a passenger elevator. A sales office is provided within the selling area. Portable fences separate the used car displays from the service parking stalls.

Service Department

Service parking stalls are arranged along an L-shaped aisle at the head of the ramp. The movement of cars to and from the roof parking area is facilitated by a passenger elevator at one end of the ramp and a stairway at the other end.

USED CARS
GM
Quality Motors
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PARTS
USED CARS

NO. 16 LOT SLOPING DOWN FROM THE MAIN STREET

PROBLEM

It is assumed that this dealer desires to engage in an exclusive passenger car business of substantial size. The business is located in a growing suburban center where there is keen competition between automobile sales agencies. The dealership is on a main thoroughfare where other buildings and store fronts compete aggressively for customer attention.

The site chosen for the building is on a far corner to main street traffic and thus possesses natural advantages for advertising to motoring traffic. The location is near enough to other retail establishments to be exposed to a substantial volume of pedestrian traffic.

The lot slopes abruptly downward from the main street, giving rise to a problem that might be solved by filling and grading, or by providing two floor levels. The two floor levels might be connected by ramps or elevators for vehicle circulation. It is also possible to divide the functions of the business so that vertical traffic movements would be unnecessary.

PERSPECTIVE

The problems that arise from the slope of the lot can be resolved most advantageously by separating the new and used car sales functions from the parts and service functions and placing them at different levels. The new car, used car and accessories activities are placed at the main street level. The service and parts activities are placed at the side street level. This separation of functions eliminates the need for ramps or elevators. It is also less expensive than filling and provides more space.

New Car Display

The showroom is shaped so one car can be 'aced to face near side traffic on the main .reet, and far side traffic on the side street. Another car is placed parallel to the main street for visibility to sidewalk traffic.

Flush doors and partitions provide a plain background that does not intrude on the display. Light colors on the rear wall and ceiling increase brightness and improve visibility under natural or artificial light.

Used Car Display

Attention is attracted to this display by a sign member on the canopy facing the main street, and by a sign facing the side street. Five cars face main street traffic and four are visible to the side street. The side street display is only partially effective because it is above eye level, but is sufficiently visible to the main street to warrant developing.

Service Display

The entrance is located on a side street which is accessible to all traffic streams. The entrance door is wide and contains large glass areas. The shop windows are continuous and their casements are modern. A service sign is placed high on the rear wall (not visible in illustration).

Parts and Accessories Display

Accessories are displayed in the main showroom where they are visible to highway, sidewalk and floor traffic. The parts activity is advertised by a sign prominently displayed over the entrance leading to the parts counter. The sign tower and product insignia give emphasis to the parts sign.

Store Front Display

With the functions divided as suggested, only a new car showroom and some offices are required above grade level of the main street. That presents another problem, since a building of this size would be too small to gain much attention in a competitive neighborhood. Similarly, the used car elevations individually are not large enough to attract much attention.

To achieve sufficient building size for high attention value, it is necessary to develop the enclosed, roofed and open parts of the property as component elements of one design. This is done with a horizontal sign element that extends across the front of the used car canopy and part way across the enclosed building. The used car sign on the side street also appears as an extension of the sign above the showroom. The combination of used car signs and showroom creates an illusion of size.

The vertical sign tower gives height to the entire building. The tower draws attention and redirects it to the showroom. The vertical mass of the sign tower is balanced by the horizontal mass of the used car sign. Product trademarks and the dealership name are displayed on the most prominent building elements.

Solid portions of the building may be fabricated of wood, plaster or metal and painted, or they may be done in materials that provide their own color, such as structural glass, porcelain on metal, or natural stone. The sign background over the new car showroom may be formed of pressed metals or composition materials.

PLAN

New Car Department

The new car salesroom is designed to display three cars. Two car displays serve an advertising function, and a third car serves a merchandising function.

The showroom is shaped so that one car can be positioned to furnish an exceptionally clear view to highway traffic. Another car is placed for sidewalk traffic, while the third car is placed for floor traffic.

Display equipment for parts and accessories is portable so that an aisle can be cleared to bring cars into the showroom through the triple doors. The two sales offices are separated by a folding partition that can be retracted to form one meeting room.

Used Car Department

Accessibility and visibility to main street traffic are the controlling factors in planning this used car display. The entire display is placed at the level of the main street by locating it on the unexcavated land fronting on the main street, and continuing it on a deck that extends over the service department roof. The display is planned so that five cars face the main street and five other cars are visible to the side street.

A canopy extends over the portion of the display area that is used to feature the late models and higher-priced cars. A shelter and used car sales office is provided.

Service Department

The service department is housed in a semi-basement. The entrance is at the level of the side street. Mechanical stalls are located in the main building while the body and paint stalls are in a wing of the building at the rear of the lot. Service parking is provided on an open lot.

The service stalls in the main building are arranged around a T-shaped aisle. A continuous flow of one-way traffic can be established by integrating the aisle system with the parking lot driveway and the side street.

The reception stalls are set at an angle to the left of the service aisle, affording maximum accessibility to entering drivers. Quick service and lubrication stalls are opposite the reception center where they can be seen by customers. Heavy repair and frame stalls are at the far end of the building. Body work, used car reconditioning and painting are assigned to stalls in the wing where noise will not interfere with merchandising.

The tool room is near the heavy repair stalls. The parts counter is convenient to mechanics working in the mechanical repair stalls. Immediately inside the entrance is the service manager's office.

The service customer entrance leads from the side street to the service waiting room. A cashier's counter and comfort facilities adjoin the waiting room A door leads directly to the service delivery area.

Parts and Accessories Department

Space for the display of parts and accessories to street traffic is provided in one section of the main street showroom. A sign tower is also used to advertise parts. The parts service counter is reached by stairs from the main showroom, or directly through a pedestrian entrance in the sign tower.

The parts stockroom occupies an excavated area. Stock bins are near the counters serving mechanics and customers. Bulky storage lies beyond bin storage.

The receiving center is between the bin storage and bulky storage. The receiving entrance leads to a parking stall set aside for the parts truck.

Management and Personnel

The dealer's office is on the main street level, with an adjoining lavatory.

The general office connects with the dealer's office, and is located so employes can watch activities in the showroom.

Restroom facilities are provided for both employes and customers. The janitor closet adjoins the restrooms, so plumbing can be connected economically and the misuse of other fixtures will be discouraged.

SPACE ANALYSIS—PLAN NO. 16

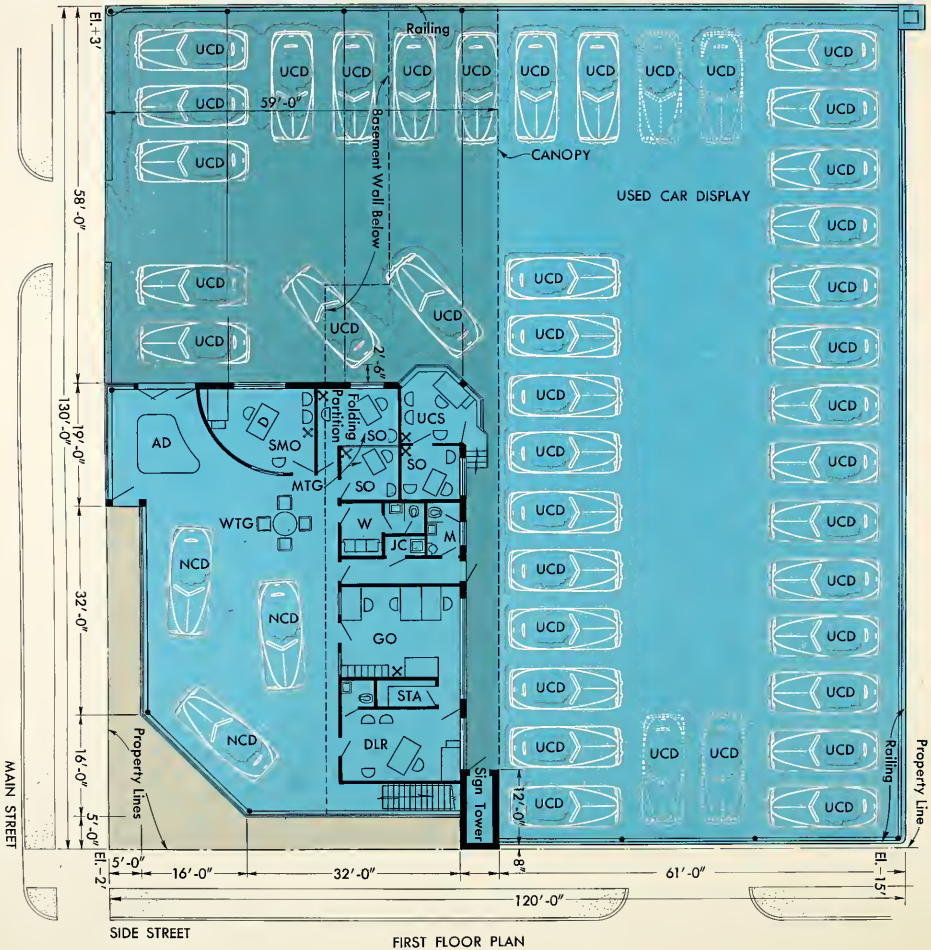
Area Description	Vehicles	Sq. Ft. of Roof Area	% or Sq. Ft. of Floor Area	% or Sq. Ft. of Land Area
New Car Department			(9%)	(8%)
Showroom	3		1312	1832
Sales Offices			215	21
Used Car Department			(2%)	(9%)
Roof Display				
Under Canopy	11	3680		2322
Open	30	7890		
Office & Storage Room			282	
Service Department			(64%)	(71%)
Productive Stalls Avg. Floor Area per Stall 413 Sq. Ft.	23		9820	9860
Parking Stalls Ratio of Parking to Prod. Stalls 1:1.2	20			6630
Service Rooms			329	329
Service Offices			174	174
Parts and Accessories Department			(10%)	(6%)
Parts Sales			325	325
Bin Storage			458	450
Bulky Storage			607	607
Receiving			176	176
Management & Personnel			(15%)	(6%)
Offices			862	304
Personnel & Customer Conveniences			1186	642
Boiler Room			378	378
TOTAL	87	11,570	16,124	24,050

Top Floor—
Main Building..... 3,352 Sq. Ft.

Lower Floor—
Main Building.....12,582 Sq. Ft.

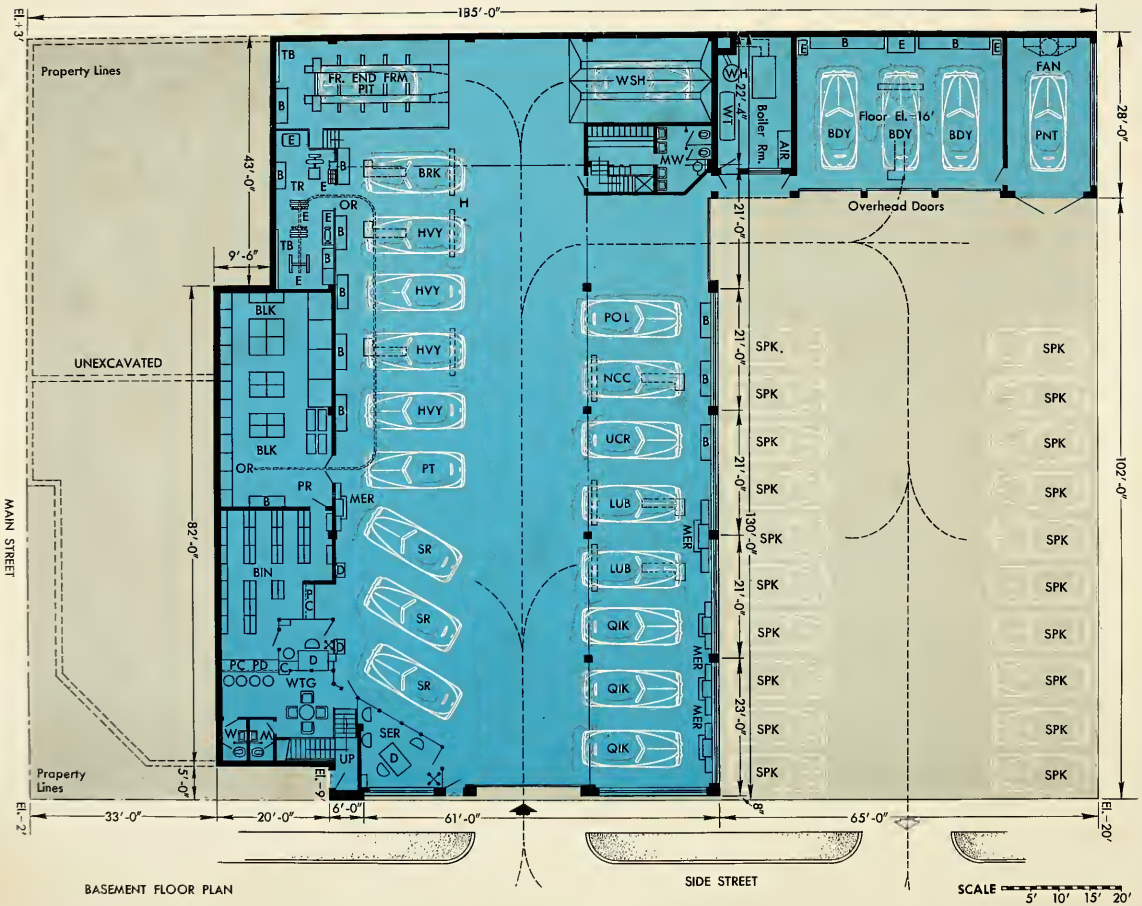
Mezzanine Floor—
Main Building..... 190 Sq. Ft

Roof Display
Under Canopy..... 3,680 Sq. Ft.
Open..... 7,895 Sq. Ft.



AD .....Accessory Display
D .....Desk
DLR.....Dealer's Office
GO ....General Office
JC.....Janitor's Closet
M.....Men's Washroom
MTG....Meeting Room
NCD....New Car Display
SMO ...Sales Manager's Office
SO.....Sales Office
STA ....Stationery and Records
STG....Storage Room
UCD....Used Car Display
UCS....Used Car Shelter
W.....Women's Washroom
WTG ...Waiting Room

FIRST FLOOR PLAN



BASEMENT FLOOR PLAN

AIR.....Air Compressor
B.....Bench
BDY ....Body Repairs
BIN.....Parts Bin Storage
BLK.....Bulky Parts Storage
BLR.....Boiler Room
BRK ....Broke Stall
C .....Cashier
D .....Desk
E.....Equipment
FAN ....Exhaust Fan
FR END..Front End Stall
FRM....Frame Stall
H .....Hoist
HVY....Heavy Repairs
LKR.....Mechanics' Locker Room
LNCH...Mechanics' Lunchroom
LUB.....Lubrication Stall
M.....Men's Washroom
MER....Service Merchandisers
MW....Mechanics' Washroom
NCC....New Car Conditioning
OR.....Overhead Rail Chain Hoist
PC .....Parts Counter
PD .....Parts Display
PNT ....Paint Booth
POL ....Polish Stall
PR.....Parts Receiving
PT.....Parts Truck
QIK ....Quick Service
SER.....Service Manager's Office
SHR ....Shower Stall
SMO ...Sales Manager's Office
SPK ....Service Parking
SR.....Service Reception
TB.....Tool Board
TR.....Tool Room
UCR ....Used Car Reconditioning
W.....Women's Washroom
WH ....Water Heater
WSH ...Wash Rack
WT.....Water Tank
WTG ...Waiting Room

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28FEB51	28 FEB 51		
DEC 19 '51	DEC 5 '51		
OCT 10 '55	OCT 10 '55		
MAR 19 '57	MAR 8 '57		
OCT 24 '59	OCT 16 '59		
JAN 22 '63	JAN 21 '63		
JAN 26 '66	FEB 1 - '66		
MAY 18 '68	MAY 17 '68		
MAY 18 '76			
[redacted] 30 [redacted]	JAN 20 1986		
SEP 13 1986			
JAN 09 1989	DEC 13 1989		
FEB 04 [redacted]	FEB 18 1990		
	SEP 26 1991		

GM

GENERAL
MOTORS